

Goodbye frame, hello VPN Manufacturer
Waters Corp. reaps cost savings, other benefits from its IP VPN. **PAGE 39.**

HP's spring cleaning With its Compaq deal complete, the new HP outlines which products will stay and go. **PAGE 8.**

NetworkWorld

The leader in network knowledge ■ www.nwfusion.com

May 13, 2002 ■ Volume 19, Number 19

Slaying spam

Unsolicited bulk e-mail poses a big threat to businesses, as Scott DeGilio found when an onslaught of spam brought down his server earlier this year. Companies are fighting back by crafting tighter e-mail usage policies and deploying an arsenal of antispam tools and services.

Page 48

Persistent doubts dog Windows 2000

■ BY JOHN FONTANA

CHICAGO — Windows 2000 shipped more than two years ago, yet network executives are still wary about the operating system, befuddled by its Active Directory and reluctant to use the software for anything more than basic net-

work operations.

Microsoft's forthcoming Windows.NET Server also confuses them.

That's the rough consensus gleaned from interviews at the Windows Decisions conference in Chicago last week, as attendees

See Microsoft, page 12

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Signs of hope buoy N+I crowd

■ BY PHIL HOCHMUTH

LAS VEGAS — While the network industry's turbulent ride isn't over, a slew of new products as well as good financial news from industry bellwether Cisco gave rise to cautious optimism at last week's NetWorld+Interop 2002 Las Vegas show.

The industry's malaise was made evident by sparse atten-

dance and a 50% drop in exhibitors from last year's event. But the companies that did exhibit touted products based on promising technologies such as 10G bit/sec Ethernet, 802.11a wireless and voice over IP.

Any turnaround for the technology economy will hinge on a pickup in enterprise IT buying, said Alcatel CEO Serge Tchuruk during a meeting with *Network*

World editors.

"We believe the enterprise business will resume," Tchuruk said. "That is why we are committing to the U.S. enterprise business." Alcatel in February introduced new Layer 2 to Layer 4 Gigabit Ethernet switches for the enterprise core and edge with its OmniSwitch 7000 and 8000 product lines. And because carriers

See Interop, page 14

Application integration made easy?

■ BY ANN BEDNARZ

For many IT executives, integrating enterprise resource planning and customer relationship management applications is akin to getting a root canal — expensive and painful.

But a handful of ERP and CRM vendors are casting off proprietary technologies in favor of industry standards to ease the sting of application integration.

Behind the effort are users who want to see application integration made easier. AMR Research reports that "a universal request" from CIOs who attended the research firm's advisory council was for packaged application software vendors to embrace

See Integration, page 65

NETWORLD + INTEROP

More
Interop news inside

- VoIP technology gains momentum. **Page 12.**
- SBC expands its hosted service offerings. **Page 14.**
- Our reporter's notebook covers the lighter side of the show. **Page 15.**
- Cisco, Enterasys and Nortel products clamp down on network vulnerabilities. **Page 15.**

Visit www.nwfusion.com for complete wrap-up of all show events and announcements from the show. On

PHOTOS MARK HARMEL



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NetworkWorld

Features

Spam assault

Spam is more than just a nuisance; it's a costly drain on IT resources, as Scott DeGulio, right, found out early this year when spammers brought his company's e-mail system to a grinding halt. Find out how you can fight back against spam. **Page 48.**

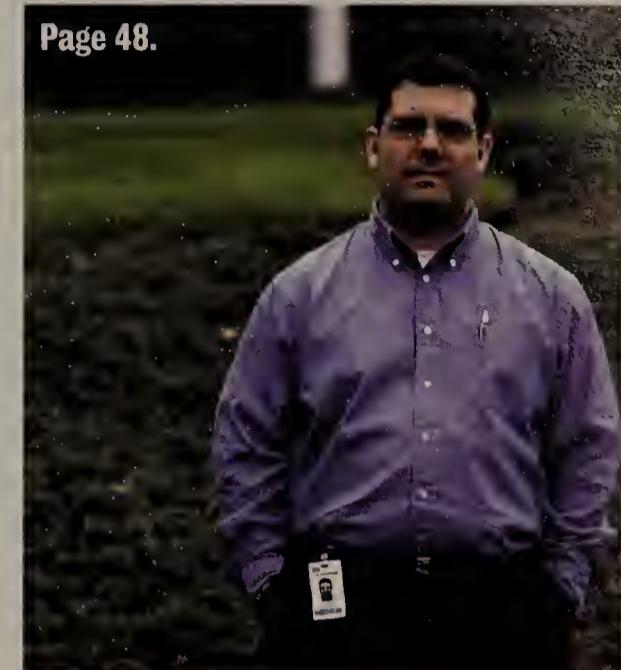
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STEVEN M. GOLDBERG

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Wireless whitepapers

Want information on 802.1X deployment and its background, Wired Equivalent Privacy and more? See the list of companion whitepapers associated with our exclusive testing series on wireless security, Multi-protocol Label Switching interoperability and iSCSI. **DocFinder: 9344**

N+I roundup

If you missed the show, or attended and couldn't be everywhere at once, get a roundup of all the news, announcements and happenings. We've even got the news broken out by categories, including security, wireless, convergence, LANs, storage and more.

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Columnists

Compendium

Cable modem hacking about to get easy. Fusion Executive Editor Adam Gaffin alerts you to a disturbing program in which hacking into a cable modem has become a piece of cake. **DocFinder: 9347**

Help Desk

Helping private subnets communicate. Columnist Ron Nutter answers a reader who wants to run an application on two private subnets. **DocFinder: 9348**

SOHO Tech

Safer laptop and PDA connections. Columnist Jeff Gaskin on why smart cards and tokens are a safer bet for mobile security. **DocFinder: 9349**

Cool Tools

Your daily dose of cool. Can't wait for the weekly installation of our Cool Tools column? Have no fear — every day, Cool Tools author Keith Shaw will update you on the latest news on gear designed to make your professional — and personal — life more exciting. **DocFinder: 9240**

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News Bits

IBM reportedly ready to cut workforce

■ Speculation is rampant that IBM will lay off thousands of employees this quarter. *The Wall Street Journal* Friday reported on its Web site that IBM will cut as many as 8,000 workers, or about 2.5% of its 320,000 workforce. *The Journal* cited as its source "a person familiar with the situation." The report follows this week's publication of a transcript of an address IBM CEO Sam Palmisano reportedly broadcast internally to employees on April 24. Robert Djurdjevic, an IBM watcher and president of Annex Research, claims to have obtained the transcript, which he distributed to Annex Research clients and posted on his Web site. In the Djurdjevic transcript, Palmisano warns of slower-than-expected growth in the technology industry and at IBM, and says the company needs to "pare back." Word of potential layoffs comes after a disappointing quarter for Big Blue. For the period ending March 31, IBM reported a 12% revenue drop and 32% net income decline over the year-ago period.

Good Technology offers Outlook to go

■ Good Technology, a well-funded Sunnyvale, Calif., messaging start-up, last week launched a new handheld device, the G100, which is custom-designed to work with Good's software for extending Microsoft Outlook to handheld devices. The company's GoodLink software lets users securely connect to their Outlook accounts and keeps users continuously synchronized, via the Cingular Wireless network, without having to use a PC-attached cradle. GoodInfo gives customers access to Web-based data in applications such as SAP and Siebel, as well as corporate intranets. The software also is available for Research in Motion 950 and 957 messaging handhelds.



Good Technology's handheld will extend Microsoft Outlook to mobile devices.

Beer programming!

Here's another site that makes you wonder how we ever survived without the Web: "99 Bottles of Beer" shows you how to spit out all the verses of the song in 272 different programming languages. www.nwfusion.com, DocFinder: 9356

For your minimum daily requirement of such essential news, see Compendium: www.nwfusion.com, DocFinder: 9357.

The Good The Bad The Ugly



Get yer jobs here. U.S. companies are looking to fill 1.1 million IT jobs over the next 12 months, according to a new Information Technology Association of America survey. That's a refreshing change from the past 12 months, during which 500,000 IT workers lost their jobs. ▶



Dearly departed. Just how bad is the telecom industry's condition? With tongue firmly in cheek, Allegro Networks is hosting a Telecom Wake (a party, really) at next month's SuperComm conference in Atlanta. Says company CEO David House: "Clearly from all the recent press and analyst reports, the telecom industry is all but dead with no hope for revival in the near future."



The politics of software. California's director of e-government has resigned and the director of the state's Department of Information Technology has been suspended by Democratic Gov. Gray Davis in relation to a growing scandal involving a dubious campaign funding check and a controversial \$95 million software contract between Oracle and the state. And yes, Davis' Republican rivals are having a field day with this.



eBay turns to VeriSign for help

■ Security services provider VeriSign and online auction house eBay last week entered an agreement in which VeriSign will provide authentication services that will be used during the online registration process for eBay sellers. In addition, VeriSign is partnering with eBay to sell the rights to domain names, starting with the .biz domain names. eBay has long registered sellers by using authentication services developed in-house, but this is the first time it will rely on an outside vendor for help. VeriSign's authentication service at eBay could start as early as next month. It is expected to speed the end-to-end registration process, which today can result in a few hours time delay for an eBay seller.

Peregrine execs resign as probe begins

■ Peregrine Systems, a maker of desktop and asset management software, last week announced it would be launching an internal investigation into inconsistencies in revenue reporting for \$100 million the company garnered in the past two fiscal years. At the same time, the company announced the resignations of CEO Steve Gardner and CFO Matt Gless. "The scope and magnitude of these [revenue reporting] matters have not been determined," the company said. Peregrine said it alerted the Securities and Exchange Commission to the potential errors and will keep the SEC informed of any findings. The company also said independent auditors KPMG replaced Arthur Andersen in April to conduct the investigation.

Microsoft buys Danish software maker

■ Microsoft has agreed to buy Danish business software developer Navision in a transaction valued at about \$1.3 billion. The deal will boost Microsoft's business-software offerings for small and midsize customers. Navision makes software for managing supply chains, finances and customer relationships. A year ago, Microsoft bought Great Plains Software, an application vendor in Fargo, N.D. "Today's announcement is really about bringing those two strong companies [Great Plains and Navision] together," said Jesper Balser, one of Navision's two CEOs. Great Plains has a U.S. focus, while Navision does most of its business in Europe. The acquisition fits with Microsoft's plans, says Lars Schwaner, a research analyst with IDC. "Microsoft has not traditionally had a strong focus on enterprise applications. This acquisition shows that Microsoft really is focusing on this space," he said.

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No surprises in HP's product road map

■ BY DENI CONNOR

PALO ALTO — Hewlett-Packard's message to customers when the acquisition of Compaq closed last week was that there will be no big surprises among the products that it keeps and those that it kills.

Of course, that doesn't mean all customers will be happy with those decisions.

Company officials last week outlined product road maps for four newly formed divisions that will make up the new HP: Enterprise Systems Group, Imaging and Printing, HP Services, and Personal Systems.

The Enterprise Systems Group is split into two divisions: Business Critical Systems handles Unix hardware, software and operating systems; and the Industry Standard Server Group covers Intel-based servers, Windows, Linux and management software.

HP's product road map for servers, operating systems and software varies little from what users and analysts had first predicted when the deal was announced last September. HP Servers, with the exception of the Celeron-based tc2100 and 2210, will be phased out by the end of October. The tc6100 and 7100, introduced last month, will never ship, analysts say. The company will migrate three hardware and three operating-system platforms to the 64-bit Intel Itanium proces-

HP product road map

HP will consolidate older products now that the Compaq merger is complete.

Server/OS/Storage	Company	Future	Prevailed over
ProLiant server line	Compaq	Ported to Itanium with Windows and Linux support.	HP Servers (formerly called Netservers)
HP-UX servers	HP	Ported to Itanium by 2003.	AlphaServer
HP NonStop (high-end Unix server, formerly Tandem Non-Stop Himalaya)	Compaq	Ported to Itanium in 2004; sold on MIPS processor through 2005.	N/A
HP Superdome (high-end Unix server)	HP	Continued enhancements.	N/A
Blade servers	HP/Compaq	HP blades for telcos; Compaq for enterprise and service providers.	N/A
StorageWorks and Enterprise Virtual Array; XP Series	Compaq/HP	Continued enhancements.	HP Virtual Arrays and disk servers
HP OpenView and Utility Data Center; Compaq SANworks and VersaStor	HP/Compaq	Continued enhancements; fold in Insight Manager.	N/A
HP-UX	HP	Port to Itanium; integrate Tru64 OpenVMS, Tru64 Unix Unix clustering and file system.	

sor over the next few years, combine HP high-end XP Series storage with Compaq's midrange StorageWorks hardware and SAN-works and VersaStor software.

"This acquisition has done wonders for the management and system strategies the two companies had separately," says Jamie Gruener, an analyst with The Yankee Group. "They really have broadened out the product line to the point that they

now have a compelling offering against IBM and EMC."

But users and analysts question the wisdom of putting all future innovation on the Itanium hardware platform.

"The challenge I see for HP is they are putting a lot of eggs in the Itanium basket," Gruener says. "My worry is whether HP has a contingency plan if Itanium doesn't work out."

Bill Todd, an independent com-

puter consultant in Strafford, N.H., says he wouldn't trust a single platform either, especially one that has been delayed so long.

"McKinley [Intel's next version of Itanium] is so late that no performance figures for it are yet publicly available," Todd says. "When [performance figures are available], expectations are that they will significantly lag [behind] IBM's Power4, which is shipping today, the Alpha EV7 and AMD's Hammer processor."

Systems administrators who have relied on OpenVMS on VAXs or scalable processor architecture-based AlphaServers are perhaps the unhappiest HP users. They say because HP hasn't settled on Alpha as a future platform, the company only has two alternatives — either AMD's Hammer processor or an Intel development project dubbed Yamhill that extends 64-bit capability to the X86 architecture.

"For new OpenVMS customers this road map has a 'Do Not Enter—Road Closed Indefinitely' sign at the first step," says Jeffrey Chimene, president of Systasis Computer Systems in Tucson, Ariz.

AlphaServers will continue to be developed through the EV7 and EV79 version processors as Compaq previously promised, but they will be phased out in 2005. OpenVMS will be ported to Itanium by as early as this summer, sources say. ■

Masergy tackles apps management

■ BY MICHAEL MARTIN

LAS VEGAS — IP service provider Masergy Communications this week launched a tool at Network+Interop 2002 Las Vegas that lets companies monitor the performance of applications across their network.

Called inControl View, the tool monitors application transaction time, application availability and network utilization by application.

"It gives users the information they need to make changes to their network, software or bandwidth," says Barry Nalls, Masergy's CEO. "The notion is to give customers a tool to measure not only our network, but other networks as well."

Customers can run inControl View as long as they have at least two sites on their network attached to Masergy's IP backbone, Nalls says.

Customers can deploy the software, which uses a thin client running on individual desktops, by distributing it themselves or by having the server upload the software to users' machines once the users hit the server.

Network managers can choose to have the soft-

ware run transparently to end users or let end users view application performance statistics in real time.

Berge Ayvazian, CEO of The Yankee Group, says Masergy's IP VPN services stand apart in that they put more control of the network in the hands of the customer than do services from other providers.

"It lets customers control the network, but doesn't force them to run the VPN themselves," he says.

Masergy's network is a Multi-protocol Label Switching-enabled IP backbone that covers the U.S. and much of western Europe.

Ayvazian says Masergy faces the same hurdle any young telecom company faces in today's market: convincing customers that Masergy is financially stable and will be around long term.

He says Masergy has solid venture backing and adds that the turmoil that larger providers such as WorldCom and Qwest face of late means smaller providers aren't necessarily at as much of a perception disadvantage any longer.

For a 10-desktop deployment, including the main inControl View management tools, a customer would pay about \$200 per month, Nalls says. Volume discounts are available. ■

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Venture funding continues to slide

■ BY CAROLYN DUFFY MARSAN

After a brief rally late last year, venture capital investments in network start-ups continued a precipitous decline during the first quarter of 2002, dropping to their lowest level in three years.

Venture capital firms invested \$3.2 billion in 387 start-ups, down 29% from last quarter's \$4.5 billion invested in 517 companies. The average investment was \$8.2

Venture capital Survey

million, down from \$8.6 million in the previous quarter.

Today's investment level is one-fifth of what it was at the network industry's peak in the second quarter of 2000. At that time, venture capital firms poured a record-breaking \$15.8 billion into more than 1,000 start-ups, many of which have since gone out of business.

These network industry statistics were compiled for *Network World* by three organizations that compiled the quarterly MoneyTree Venture Capital Survey: PricewaterhouseCoopers, Venture Economics and National Venture Capital Association.

Despite the downturn, industry observers say venture financing for promising technologies such as Internet backbone routers, metropolitan-area Ethernet and voice over IP remains high from a historical perspective.

"The conventional wisdom is that the sky has fallen, and we're in a virtual depression," says Steve

Bengston of PricewaterhouseCoopers.

"But 2001 was the third-biggest venture year ever," Bengston says. "And even if we stayed at this same level for all of 2002, we'd still have the fourth-biggest venture year. That's hardly a depression by anyone's standards."

The top 10 deals of the quarter all surpassed \$40 million. One deal — a \$120 million investment in IP switch manufacturer Caspian Networks — is reminiscent of the industry's glory days of 1999 and early 2000. Caspian has raised \$262 million in four rounds of financing since its launch in February 1999.

Caspian attracted so much money because it offers a breakthrough, cost-saving technology for service providers, says Faizel Lakhani, a vice president at Caspian.

"Even the most conservative estimates show IP traffic growing at 100% a year," Lakhani says. "Service providers are now recognizing that they need to invest in an IP infrastructure . . . that reduces the cost of IP networks."

Caspian isn't the only Internet infrastructure start-up to get funding. Indeed, six of the top 10 deals are for companies building backbone routers or switches. Two more companies offer software for service providers.

With these investments, venture capital firms seem optimistic about the service provider market despite the current financial woes facing top-tier carriers such as AT&T and WorldCom.

"Given that service providers are in trouble today doesn't mean the traffic is going away. Somebody will carry this traffic," Lakhani says. "There's an opportunity for solutions that reduce the

The top 10

Companies building products for advanced carrier networks garnered the most venture funding in Q1.

Company name and location	Description	Amount
Caspian Networks San Jose	ATM/IP communications switches.	\$120M
Chiaro Networks Richardson, Texas	IP infrastructure platforms.	\$80M
Atrica Santa Clara	Optical Ethernet systems.	\$75M
Syndevo Campbell, Calif.	Voice-over software.	\$75M
Turin Networks Petaluma, Calif.	Broadband infrastructure platform.	\$58M
Polaris Networks San Jose	Systems for multiservice optical networks.	\$55M
Pluris Cupertino, Calif.	Internet backbone routers.	\$53M
SmartPipes Redwood City, Calif.	Managed services creation and delivery software.	\$53M
Equipe Communications Acton, Mass.	High-speed routing and switching equipment.	\$40M
Pcube Sunnyvale, Calif.	Technology for IP service providers.	\$40M

SOURCE: PRICEWATERHOUSECOOPERS/VENTURE ECONOMICS/NVCA MONEY TREE SURVEY

cost of ownership and increase revenue [for carriers.]"

Another IP infrastructure start-up that attracted major investment last quarter was Chiaro Networks, a developer of large-scale backbone routers. Chiaro raised \$80 million last quarter in its fourth round, bringing its total venture financing to \$210 million.

"All the top-tier carriers are seri-

ously studying how to replace their IP cores with the next-generation platform," says Ken Lewis, CEO of Chiaro. "What's going on now is [requests for information] and lab trials. They're looking for the new platform to be deployed next year."

Venture capitalists say investments won't start rising again until the IPO or merger/acquisi-

tion markets improve, which isn't expected until next year.

"Short term, the network industry is going to remain traumatic [and] very uncertain," Bengston says. "But long term, we have to say that the network business looks great. All the money that went into the network industry was not wrong. There will be some huge winners." ■

Corio to offer mgmt. software

■ BY JENNIFER MEARS

SAN CARLOS, CALIF. — Application service provider Corio later this month will roll out software designed to give customers more control over how their hosted applications are managed by integrating functions such as billing, service requests, workflow and service-level monitoring into one user interface.

Corio originally developed its iSRVCE software for its own use to streamline and automate various IT functions.

Corio refers to the software as technology resource management because it integrates front-end and back-end processes necessary to manage information systems, just as customer relationship management and enterprise resource planning integrate functions necessary for those business processes.

"Look at enterprises these days: Every function is automated except IT. It's almost like the cobbler's children have no shoes," says John Ottman, executive vice president of worldwide markets for Corio. "There is software out there at the point-system level to automate IT, but it's not integrated. As [individual entities], they don't provide visibility and control over a cohesive system."

Corio's iSRVCE is a secure, Web-based application built on XML and Java 2 Platform Enterprise Edition. It integrates various IT applications such as asset management, monitoring and billing management. The focus is to give customers more visi-

bility into applications managed by Corio and more control over how those applications fit into their existing systems.

The software, which can work with existing network and system management applications, is hosted by Corio on IBM WebSphere application servers and delivered to customers the same way they receive their hosted applications, via frame relay or IP VPN.

Analysts say Corio is moving in a good direction with iSRVCE because the issue of control remains a stumbling block to the adoption of application service provider (ASP) services by bigger customers.

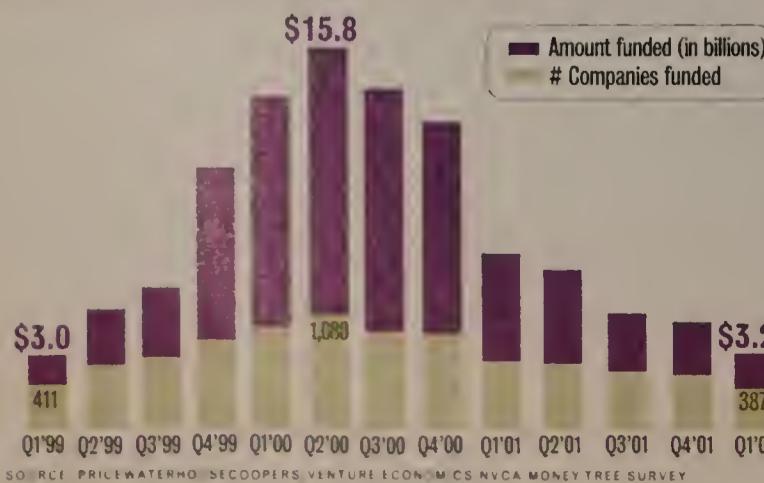
Corio is "giving businesses visibility into the system and giving them some control over things like user administration, checking on service-level-agreement levels and being able to track trouble tickets as they make their way through the system. Those are all important aspects of keeping the IT manager empowered when it comes to application service," says Amy Mizoros, an analyst at IDC.

She says businesses can expect ASPs in larger numbers to begin rolling out customer service portals and integrated management software similar to what Corio is offering. Ottman says a base iSRVCE package including My Corio, demand management and self-service modules will be included in any application hosting contract. Additional users and modules, such as knowledge management and process automation, will be priced on a monthly subscription basis.

Corio: www.corio.com

Disappearing act

After a brief rally in Q4 last year, venture investments in network companies plunged to a three-year low in Q1 this year.



Your customers can be demanding



children. So you'd rather not spend your time with a demanding infrastructure. And while this is true in many businesses, it rings no more true than at KinderCare—because their business actually *is* children.

So when it came time to relocate their headquarters, KinderCare turned to a partner they grew up with: HP. Already working in an HP environment, KinderCare systems administrators took this opportunity to reevaluate their needs.

With over 1,100 locations—and growing—they needed a scalable solution that could handle more than the current 300 users at a time. After all, how could employees provide the instant gratification that kids desire if they couldn't get it themselves? Updated HP servers and HP Critical Systems Support did the trick.

Now, updates that used to take hours take place in only 12 minutes. Which means KinderCare employees can devote even more of their efforts to what they do best: teaching and caring for children.

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Bob Willey
Vice President of Information Services, KinderCare Learning Centers

"We don't consider HP a vendor, we consider them a partner. They know where we've been—but more important, they know where we're going."



Vendors extend VoIP interoperability

■ BY PHIL HOCHMUTH

LAS VEGAS — Signs of momentum behind IP voice/data convergence were plentiful last week at NetWorld+Interop 2002 Las Vegas as vendors moved to address common complaints about the technology, and early adopters shared their lessons learned.

Partnerships involving phone makers Pingtel and Polycom as well as voice-over-IP systems and security vendors Shoreline Communications and Jasomi Networks were announced, which could lead to more interoperable and secure VoIP networks. Best

practices for how VoIP should be done were discussed during a session devoted to success stories.

Shoreline, which makes a dis-



tributed IP PBX system that supports analog and IP phones, announced it would offer Polycom's SoundPoint IP phones as part of its overall IP Voice Communication family.

Polycom recently announced it is teaming with IP phone maker

Pingtel to offer VoIP software and hardware aimed at organizations interested in adopting the Session Initiation Protocol (SIP) standard for VoIP applications.

Also at the show, Pingtel demonstrated that its SIP phones could interoperate with Jasomi's PeerPoint SIP-enabled firewall product. The box provides network address translation and firewall inspection of SIP traffic, which is not supported in many firewall products, the company says.

How to install and manage this type of equipment was the focus of a panel discussion at the show.

When rolling out IP telephony

gear, it is important to consider IP voice as not just another data application, says Anita Dulude, technical services director for ThruPoint, an integration firm.

"It's unrealistic to think that you can deploy IP telephony on your data network without having people with a voice background involved in the process," Dulude says.

Dulude recently completed an installation of 2,000 IP phones at a new facility built by Merrill Lynch in Hopewell, N.J. She says working with the company's telecom staff, which had a background in Avaya PBXs, but not IP

voice, was essential in making sure the Cisco AVVID IP telephony gear being installed worked smoothly with the existing phone network.

For VoIP deployments that span multiple branches instead of one campus, a company's service provider will be its biggest key to success, says Michael Shisko, director of IT for Experio Solutions, a technology-integration company in Dallas.

"It's more important to work with your WAN vendor than your IP PBX provider" when configuring a multisite VoIP deployment, Shisko says. ■

Microsoft

continued from page 1

praised the reliability of Win 2000 — especially on the desktop — but said they remain hesitant to consider the operating system for key business applications now running on Unix or minicomputer platforms. Network executives say their Win 2000 servers are mostly for file and print operations and directory services, and it will remain that way until the operating system incorporates features such as workload management that let multiple applications run reliably on a single server.

"Windows 2000 has been a step in the right direction," says Peter Steinbach, technology solutions consultant for a large telecommunications company he asked not be named. "It's above NT on the desktop and it's positive as far as reliability on the server, but it's been slow on adoption."

Statistics show that Windows NT remains the dominant Windows platform. At the end of last year, almost 60% of the 7 million Windows server operating systems installed were NT, according to IDC. And NT is expected to be a small yet measurable fraction of the installed base through 2006.

IDC research shows that the No. 1 use of Win 2000 is for file and print services, with messaging the No. 2 use. Running applications on a server environment is No. 8.

"To think about cutting out our AS/400 platform for Windows 2000 we would need workload management and partitioning in the operating system to support our major applications," says Tony Moncayo, network services manager for a global apparel manufacturer. Those applications include accounting and warehousing. "People just don't want to move those applications off those trusted platforms."

Experts say it will be the Longhorn release of Windows — expected around the beginning of 2005 — that introduces those types of features to support critical applications such as accounting, manufacturing and accounts receivable.

"We are [International Standards Org-

Windows evolution

With the delay of Windows.NET Server, Microsoft's server operating systems are now on an evolutionary track that will likely take five years to complete.

Windows Net.Server

Issue: Shipment delay throws wrench in corporate rollout plans.

Key advancements:

- Active Directory 2.0
- 64-bit support
- 16-way systems from IBM
- Systems based on McKinley chip

Windows Blackcomb

Issue: All about delivering an object-oriented file system.

Key advancement:

- Unified data store based on Yukon technology

Windows Longhorn

Issue: Adds more server manageability and reliability for supporting serious application environments.

Key advancements:

- Workload management
- Partition awareness

anization]-certified, and those ISO applications run on Lotus Domino on the AS/400," says Rick Wofford, IS coordinator for Hydro-Gear in Sullivan Ill., which manufactures hydrostatic transaxles for lawn mowers. "We couldn't risk running them on NT, and I'm not yet willing to try them on Windows 2000."

Net executives also continue to struggle with Active Directory, which is a radical change from NT 4's domain structure.

"We spent nearly a year planning our move to Windows 2000, and Active Directory was a major part of that planning," says Edward Rohen, IT systems support technician for The Saginaw Chippewa Indian Tribe of Michigan.

"Active Directory changes the corporate IT landscape and leads to political battles that slow adoption," says IDC's Dan Kusnetzky.

But network executives are running out of time for infighting because support for NT ends in December 2003. That means

users will have to upgrade or run unsupported software.

Many are confused by Windows.NET Server and Microsoft's entire .NET and Web services initiative to deliver software as a service over the Internet.

"With Windows.NET Server I've been wondering what do we have to do different with this. Where do we have to button this down? I understand now what it really is is a .NET moniker on an [operating system] with Active Directory enhancements," says Bill Snyder, a senior consultant at Keane.

Experts classify Windows.NET Server as an incremental upgrade to Win 2000, but the .NET name leads many to think it is a major shift. Even in the confusion, net executives are questioning if it is better to wait for Windows.NET and skip Win 2000. That might be an effective strategy, because any planning for Win 2000 is applicable to Windows.NET because they are so similar.

And Gartner says by the time the majority of NT upgrades are completed,

Windows.NET Server will be the mature operating system and Win 2000 will be entering the back end of its life cycle.

Another issue facing network executives is that the server and client are now out of sync. Windows XP shipped last fall, well ahead of its yet-to-be-released companion Windows.NET Server. That means certain network features are not available. The nearly 150 policy objects introduced in XP, which can be used in conjunction with Active Directory to lock down desktops, are unusable until the server ships.

"One of the benefits of Windows 2000 is that the servers and the clients are built for each other," says Dean Sheley, network administrator for Southeast Technical Institute in Sioux Falls, S.D.

The delay in Windows.NET server also brings up another issue in that features needed by enterprise users — such as those for Active Directory and group policy — are not available until the entire operating system is shipped. "One of the biggest issues is that parts of the [operating system] need to be updated more frequently," says John Enck, vice president and research director for Gartner. But starting with Win 2000, Microsoft vowed not to ship features in service packs. It is now reconsidering, observers say.

"Users can't wait two years for major releases. The big issue is how do you update components like Active Directory," Enck says.

And the list of considerations deepens with Microsoft's complex and often costly licensing changes, which take effect Aug. 1. The issue is causing network executives to investigate alternatives to Microsoft where it makes sense within their networks.

"We are looking at Linux for file and print operations," says Nathaniel Dean, IS director for Blue Chip Venture Company in Cincinnati. "We know that we can't leave Microsoft completely, but where we can leave it we will." Dean says he is tracking progress of Lindows, a Linux desktop that mimics Windows, and open source alternatives to Microsoft Office. ■





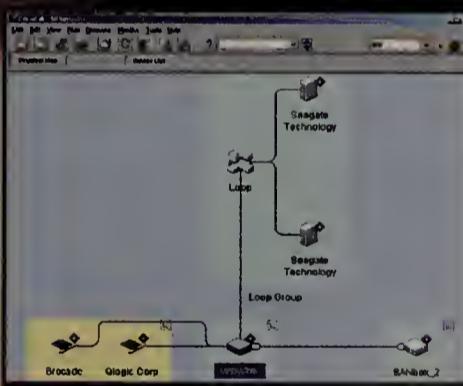
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Interop

continued from page 1

typically draw half their revenue from businesses, Tchuruk said, "a carrier rebound will come with the growth of that enterprise demand."

Alcatel rival Cisco gave showgoers the biggest reason for optimism last week, however, when it posted third-quarter earn-

ings that were up \$3.4 billion over the same period last year. That news rallied Nasdaq, which saw its best percentage gain in a year the day after the announcement. Additionally, the Dow Jones Communications Technology Index — which encompasses most of the publicly traded IT vendors showing at N+I — was the top-performing industry last week.

"We believe we're seeing improvement in the commercial, or small- and midsized businesses sectors," said Cisco CEO John Chambers during his keynote address and roundtable discussion with reporters at the show. This was backed up by Cisco's numbers, which showed an increase in LAN switch bookings and overall enterprise sales that held firm, as opposed to drop-

ping. "From there, we think enterprise will follow, then service providers. Time will tell if that pans out."

Chambers said that in the meantime, companies will continue to do more with less. "This is now a show-me economy. Before [enterprises] begin to spend and hire, they will look to leverage the infrastructures they have," he said. "You can

watch for another two to six months until [companies] will start to spend again."

Other industry leaders had similarly guarded optimism about the enterprise market.

Michael Howard, principal analyst with Infonetics Research, is optimistic, although he says the industry will be in this economic trough for another year. "The money goes from the consumer to the business, from the business to the service provider, from the service provider to the equipment manufacturer," he says. "Even though the service providers have restricted spending, the pressure for more capacity at the edge of their networks will prompt spending first."

Developing innovative enterprise products was part of the focus of Tchuruk's keynote address, in which the Alcatel CEO pledged his company will spend \$2.4 billion in research and development this year in areas such as real-time applications and convergence products.

Other vendors brought the fruits of their own research and development efforts to the fore:

- Intel looked toward the future of wired and wireless network, unveiling a 10G Ethernet network interface card and dual-mode IEEE 802.11 wireless LAN products. The company introduced the Pro/10GbE LR Server Adapter as well as an access point and a chipset that support 11M bit/sec 802.11b and 54M bit/sec 802.11a wireless LANs. The growing base of 802.11b networks and the potential of

802.11a mean users will demand dual-speed clients and access points for wireless connectivity in many locations.

The 10G Ethernet technology is expected to play a large role in metropolitan networks. It also will become necessary on corporate backbones as Gigabit Ethernet is deployed at desktops and wireless LAN users spend more time online, the company says.

- A variety of vendors looked to address concerns among wireless LAN users regarding management and security as well as deployment of mixed 802.11b and 802.11a networks.

Among those announcing new technology were Network Associates' Sniffer Technologies, which is unveiling software for managing wireless LANs from a handheld device. Finisar featured a new version of its Surveyor performance management and testing software that works with 802.11b wireless LANs from companies such as 3Com, Cisco and Symbol Technologies. The software, which sits on a laptop outfitted with a wireless LAN card, performs seven-layer packet and traffic analysis of radio frequency signals. And Symbol rolled out MobiusGuard, software for its Spectrum24 wireless LAN access points that promises improved security.

— around 2000 — our sales were about 65% service provider vs. 35% enterprise. Now enterprise accounts for around 80% of sales," he said. Areas such as security that address immediate problems or technologies that can show sharp increases in performance for minimal cost, such as low-cost copper Gigabit connections for servers, are some of the hot spots for Foundry, Johnson added.

Foundry announced new products at the show to entice buyers in these areas, with its 10-port 1000Base-T Edgelron 10GC2F aggregation switch, and its new IronView Network Manager software, which can be used to trigger security alerts on Foundry switches.

While large IT projects have been relegated to back-burner status over the past year, other areas that will keep the enterprise market afloat during bad times are the endless cycle of upgrades and maintenance necessary for all IT shops, said John Roese, CTO at Enterasys Networks.

"That will always be there," Roese said. "The amount of junk still out there is phenomenal," as many networks are still upgrading from such technologies as 10M bit/sec hubs, ATM or token ring.

This idea resonated with atten-

SBC rolls out new hosting services

■ BY MICHAEL MARTIN

LAS VEGAS — SBC Communications' E-Services hosting subsidiary pumped up its offerings by unveiling storage-area network, managed security and enhanced monitoring and reporting capabilities at NetWorld+Interop 2002 Las Vegas last week.

"This is a big step forward for them," says Courtney Quinn, an analyst with The Yankee Group. "It's the first time they've really put a stake in the ground."

The enhanced monitoring and reporting capabilities include predictive reporting, which allows users to head off potential problems before they occur.

SBC now can monitor a client's hosted operations over a six-week period to establish what normal operating conditions are and identify potential problem areas. SBC then will establish thresholds, and if those thresholds are in danger of being exceeded, SBC will notify the client of the potential problem before it affects operations. If the user agrees with SBC's assessment, SBC will then take steps to solve the potential problem before it occurs.

SBC will monitor a range of areas, including CPU utilization and throughput.

The managed security additions include firewall and intrusion-detection services.

The SAN services will provide customers with highly available storage running over a fiber-based infrastructure.

SBC's hosting operations will be based at the provider's two data centers in Dallas and Irvine, Calif.

Quinn says now is a good time for SBC to get more aggressive in the hosting market.

"The pure plays are struggling, so it makes sense for SBC to begin pushing its name out there," she says.

Quinn notes that SBC isn't offering anything revolutionary in the hosting market. But the provider has the stability some pure hosting providers lack, and can take advantage of its brand name in its home territories.

SBC: www.sbc.com

“You can watch for another two to six months until [companies] will start to spend again.”

John Chambers
CEO, Cisco

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“We believe the enterprise business will resume.”

Serge Tchuruk
CEO, Alcatel

The issues of network security and resiliency resounded all week at the show, as vendors touted technologies such as high-speed switching, traffic management, VPNs and intrusion detection.

Foundry Networks CEO Bobby Johnson said concerns about security and network performance will spur any growth in the enterprise sector.

"Slow IT spending is here, and it's been here," Johnson said. "But we're beginning to see some renewed activity."

With enterprise sales being the only business these days for many vendors, Johnson resounded the issues of security and the strengthening of network infrastructure.

"In the heyday of the industry

dees at the show, as longevity of any technology purchase was a top consideration.

"It took us 10 years since we put in FDDI to completely get rid of it in our network," said Willis Martin, associate director of computing and information services at Texas A&M University, who was looking at Gigabit Ethernet and quality-of-service products. With an ever-tightening budget, Willis said he needs to see proof that any new technology he buys will be there for the long run.

Senior Editor Tim Greene contributed to this report.

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THIS WEEK'S QUESTION:

Bill Krause, previously CEO of 3Com and more recently Exodus, is now taking the reins at which company?

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Big net names push security wares

Cisco, Enterasys and Nortel extend intrusion-detection system, VPN lines.

■ BY PHIL HOCHMUTH

LAS VEGAS — Cisco, Enterasys Networks and Nortel last week used NetWorld+Interop 2002 Las Vegas to push new intrusion-detection and VPN products, recognizing that network security might be among the few things on which customers currently are willing to spend money.

Cisco's new IDS 4250 appliance is designed to secure high-speed, wide-area links or big pipes with-

in corporate campuses, offering intrusion detection on about 500M bit/sec of traffic. The company says a hardware upgrade by year-end will roughly double the performance of the device, which can support copper and fiber 1G bit/sec interfaces.

For companies with lower-speed connections to a WAN and for departments within a company, Cisco introduced the IDS 4235, with 200M bit/sec performance. It offers 10/100/1000M bit/sec cop-

per Ethernet support. Both devices fit into a standard rack and are 1U (1.75 inches) high.

New software for Cisco's IDS appliances, which include three previous models, lets administrators manage the boxes from a Web browser, with Secure Sockets Layer security.

The 4250 costs \$25,000, while the 4235 costs \$12,500.

Separately, Enterasys announced Version 6.0 of its Dragon intrusion-detection product line, which will

support higher-speed networks than the previous edition, which maxed out at 300M bit/sec. The product line, which ships in August, comprises Network Sensor, which can run on an industry-standard server or an Enterasys appliance; Host Sensor software, which resides on corporate servers and can report attempted hacks and viruses; Policy Manager, a Web-based administration tool for configuring Dragon components and updating attack sig-

natures; and Security Information Manager, a database application that can collect security information from Dragon components and compile data on security activity into real-time reports that IT security staff can view.

New appliances include the FE50 and FE200 for 10M bit/sec and 200M bit/sec of intrusion-detection throughput, and the GE500, with a traffic-detection throughput at 500M bit/sec. The appliances will cost from \$7,500 to \$22,000.

Network Sensor software will be available independently of the appliances for \$3,000 to \$15,000, depending on speeds supported. The Host Sensor will cost \$650 to \$2,000, depending on the operating system, while the Policy Manager will cost \$2,500 and includes the Security Information Manager.

Nortel used the show to launch its new Contivity gateways, three of them aimed at providing site-to-site or remote-access VPN connections for small branch offices and teleworkers, and two of them for connecting branch offices and campus locations with high-speed, secure WAN links.

All the new boxes support stateful-inspection firewall capabilities and IP routing with support for protocols such as Open Shortest Path First and RIPv2. The boxes come with unlimited licenses for Contivity VPN Client software for Windows.

For small or home offices, the Contivity 1010 provides two ports of 10/100M bit/sec Ethernet and can support encrypted VPN tunnels. The Contivity 1050 and 1100 include a four-port LAN switch and can support up to 30 tunnels. The 1010 will be priced at \$1,000, and the 1050 and 1100 will be priced at \$1,300 and \$1,500, respectively. The small office/home office devices will be available in June.

The 1700 can support up to 500 VPN tunnels, while the 2700 can handle 1,000 encrypted tunnels for larger site-to-site VPN deployments. Both boxes come with two integrated 10/100M bit/sec Ethernet ports and optional T1 interfaces with an integrated DSU/CSU. The 1700 and 2700 will be available for larger sites in July, but pricing has not been set.

Reporter's Notebook

From Virus Girls to Wayne Newton

A report on of the lighter side of last week's show compiled by Network World staff:

Hire from within

Panda Software drew huge crowds with its Virus Girls — Code Red and My Party. But these weren't your run-of-the-mill booth models-for-hire, they were executives with the software vendor (whom we promised not to identify) who could fill attendees in on the latest security threats or, more to their liking, about Panda's Antivirus Enterprise Suite.



Panda pushers

No, not that 'Man Show'

Aprisma drew crowds to its booth with "The MANagement Show," a takeoff on Comedy Central's sometimes funny, sometimes just gross "The Man Show," featuring Hawaiian-shirt-clad hosts and of course, scantily dressed models. But instead of male-oriented issues with which "The Man Show" deals, this performance focused on Aprisma's Spectrum network management tool. The hosts said this tool made it easier for net executives to take care of their network issues, leaving plenty of time for cavorting (try selling that to your executive team on your next budget cycle). But if the sales pitch wasn't enough, the company passed out free beer. The audience was overflowing into the aisles.

Snow job?

Sprint drew a sizeable crowd to its booth with a trampoline and a pair of freestyle-skiing champions.



Trace Worthington

You've learned well, grasshopper

They were kung fu fighting at the Enterasys Networks booth, as "Charlie's Angels"-esque bodyguards demonstrated how the company's intrusion-detection products work. Chops to the head and kicks to the groin were used against such personified network villains as the evil "Melissa" and the sloven "Bandwidth Hog." Now if only the embattled network firm could get its angels to help fight the Securities and Exchange Commission investigators and independent auditors who are combing through the company's accounting practices.

Wayne who?

Two public relations people and a trusty Network World reporter were in front of the Mandalay Bay casino waiting for a cab when a black SUV pulled up and out popped Wayne Newton. The Las Vegas resident and perennial headliner met up with two women — walked into the hotel for some type of charitable event for a children's advocacy group. Newton was impeccably dressed in black, and his bouffant hairdo was perfect. After Newton passed by, one of the "younger" people turned and said, "Wasn't that somebody famous?"

No free cars

EmergeCore had a red Corvette in its booth, leading many to think they might win it. But possible ownership of the car was limited to resellers of EmergeCore's gear. Resellers who sell enough gear to qualify get a key, and whoever gets the one that starts the Vette gets the car. Mercedes took a direct approach. A sponsor of the show, the company exhibited several models, but was trying to sell them, not give them away. But attendees could sign up to test drive them.

The IDG News Service contributed to this report.

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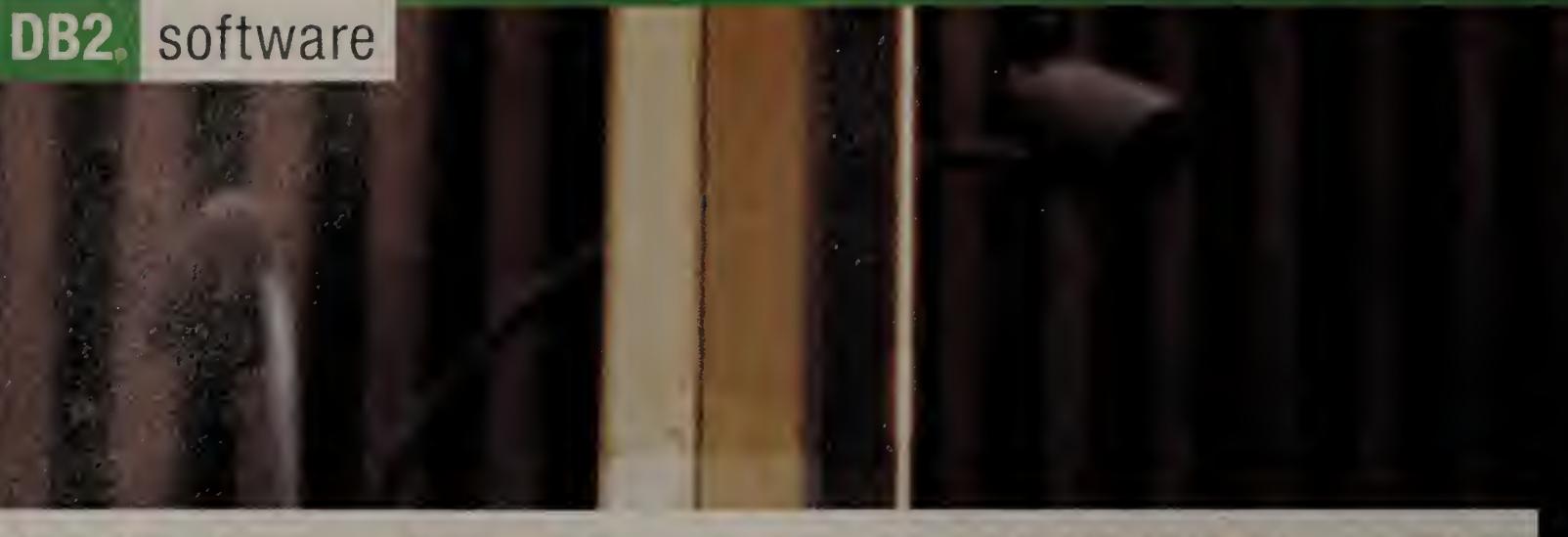
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A Flexible Approach to Metro Ethernet

THE MARKET FOR METROPOLITAN ETHERNET SERVICES IS HEATING UP.

Businesses are exhibiting "a nearly insatiable demand for bandwidth" for metropolitan- and wide-area networks, with the average enterprise increasing such network capacity by 25% to 50% per year, according to a recent Gartner, Inc. report. The drivers for this bandwidth increase are many, including the rapid consumption of LAN bandwidth feeding networked PC applications, data backup and disaster recovery. There is also a growing need for high-speed connections to the Internet, to myriad internal company sites and, increasingly, to business partners.

In order to satisfy this demand for bandwidth in a cost-effective manner, many service providers (SPs) are looking to Ethernet technologies. Ethernet has already been proven to deliver low-cost bandwidth in the LAN and offers great potential for lower cost bandwidth in the WAN compared with traditional carrier data services, such as ATM, time division multiplexing (TDM) and frame relay.

A major advantage metro Ethernet services offer over traditional TDM offerings is flexible bandwidth provisioning, says Bob Klessig, director of engineering for the Internet Systems Business Unit at Cisco Systems.

"Metro Ethernet SPs can scale up user bandwidth from 1 Mbps to a full gigabit per second in increments of 1 Mbps or less, and do so in a matter of hours, without expensive SP or customer equipment upgrades," Klessig says. "In fact, it is possible to enable end users of metro Ethernet services to provision their own bandwidth dynamically, using Web-based provisioning applications."

Cisco recognizes that SPs need a way to realize the potential of these new Ethernet services while still serving customers that use traditional WAN services. Many customers, for example, have branch and regional offices that are well-served by TDM, frame relay or ATM service at T1 speed and less, but face bandwidth constraints in WAN connections to their headquarters. It can be expensive for customers and SPs alike to upgrade those headquarters links from T1 to T3, or from T3 to OC-3. A better solution is to offer an Ethernet connection, which can be provided at virtually any speed up to 1 Gbps and will work with all existing services at the branch locations.

For regional metro, metro aggregation and metro access, the Cisco Metro Ethernet Switching portfolio enables SPs to deliver profitable, comprehensive Ethernet services (see figure). At the same time, the portfolio allows SPs to protect their investments in existing ATM, frame relay and TDM infrastructure – and corresponding revenue – by allowing those services to seamlessly interconnect with metro Ethernet services. Cisco also helps SPs minimize total cost of ownership for new services with its extensive automated operations support.

A full metro Ethernet lineup

The Cisco Metro Ethernet Switching portfolio includes products that address all SP requirements:

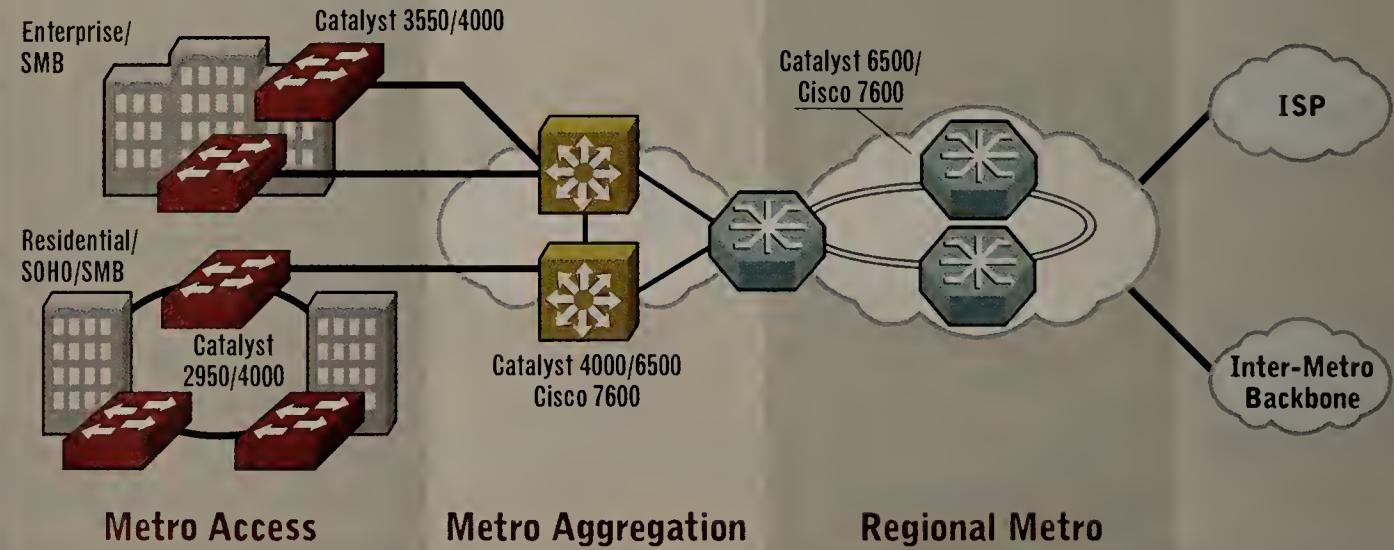
- The Cisco 7600 Series delivers metro aggregation with high-touch Layer 2 and Layer 3 IP services and Ethernet connectivity at up to 10 Gbps. It supports interworking with ATM services and metro Ethernet services over Multiprotocol Label Switching (MPLS) core networks using SONET links of up to OC-48/STM-16.
- The Cisco Catalyst 6500 Series multilayer switches deliver metro Ethernet aggregation with Layer 2 and Layer 3 IP services with 10 Gbps Ethernet connectivity. Optional optical modules support short-haul (10 kilometers) and long-haul (up to 50k) distances.
- Cisco Catalyst 4000 Series switches, including the Ethernet in the First

Mile (EFM) solutions, support metro Ethernet aggregation and high-density access, bringing optical Ethernet connections to customers.

- Cisco Catalyst 3550 Series switches are fixed-configuration switches that are ideal metro access switches for enterprise as well as small and medium-sized business markets.
- Cisco Catalyst 2950 Series switches are fixed-configuration switches intended for metro access in residential markets.
- The Cisco Coarse Wave Division Multiplexing (CWDM) Gigabit Interface Converter (GBIC) solution allows scalable and easy-to-deploy Gigabit Ethernet services. The Cisco CWDM GBICs and CWDM optical add-drop modules (OADM) enable the design of flexible and highly available networks.

Cisco Metro Ethernet Switching

The Cisco Metro Ethernet Switching portfolio includes products that address service provider metro Ethernet provisioning requirements at every level, and provides interworking with existing TDM, frame relay and ATM services.



Metro Access

Metro Aggregation

Regional Metro

Maximum flexibility

The Cisco Metro Ethernet Switching portfolio has the flexibility to support both Layer 2 and Layer 3 metro services with equally high proficiency. At Layer 2, for example, the portfolio not only supports the traditional 802.1Q virtual LAN (VLAN) control plane, but also overcomes the inherent scalability limitations of 802.1Q by delivering support for Ethernet over MPLS (EoMPLS). EoMPLS enables the extension of Layer 2 Ethernet services on a metro, national or even global carrier scale.

Especially important to established SPs is the ability of the Cisco Metro Ethernet Switching portfolio to perform network aggregation for metro Ethernet services in combination with ATM, frame relay and TDM services. This enables carriers to use the same network equipment platform for metro Ethernet and legacy services, thereby achieving greater efficiencies in equipment management and personnel training. As a result, operational costs remain low and SPs can preserve the revenue they currently generate from ATM, frame relay and TDM services while supporting customers with metro Ethernet services.

In short, the Cisco Metro Ethernet Switching portfolio is versatile, powerful and flexible enough to ensure that SPs can give their customers the bandwidth and service levels they need, at a price they can afford – and still reap a profit.

For more information

Go to www.cisco.com/go/metroethernetswitching. Or visit www.nwfusion.com/go/metro to download a copy of the white paper, "Cisco Metro Ethernet Access Services: Directions in Control Plane Concepts."

Infrastructure

TCP/IP, LAN/WAN SWITCHES
 ROUTERS ■ HUBS
 ACCESS DEVICES ■ CLIENTS
 SERVERS ■ OPERATING SYSTEMS
 VPNS ■ NETWORKED STORAGE

GE-Cisco venture re-energized

■ BY CAROLYN DUFFY MARSAN

Two years after it was announced with great fanfare, a joint venture between General Electric and Cisco to sell Ethernet-based products and services into manufacturing environments finally is gaining traction.

GE Cisco Industrial Networks, based in Charlottesville, Va., was hard hit by the downturn in manufacturing during the last 18 months. The privately funded venture experienced a turnover in leadership early on, and it endured tepid support from Cisco, whose management team was focused on internal problems during much of 2000 and 2001.

Now the venture seems re-energized by a rising demand for its network design, consulting and integration services. GE veterans, who lead the effort, have built up a base of 50 customers in the semiconductor, pharmaceutical, automotive, water

PROFILE: GE CISCO

Location: Charlottesville, Va.

CEO: GE veteran William Estep

Business: Ethernet-based products and services for manufacturers.

Financing: Still working off an initial capitalization from GE and Cisco.

Revenues: Goal is to reach \$100 million by 2004.

Customers: 50, with 20% pursuing repeat engagements.

Staff: 30

and power industries. Cisco, which reorganized its sales force into vertical markets, has committed 10 people to work closely with the venture.

"We're pretty optimistic for 2002," says Robert McKeel, vice president of marketing

at GE Cisco Industrial Networks and the only remaining member of the original management team. "Every feel we get from the manufacturing sector is that spending is happening again."

GE Cisco was formed in the summer of 2000 to take advantage of an ongoing shift in industrial networks from the use of special-purpose protocols to Ethernet and TCP/IP. The shift is happening for several reasons:

- Ethernet offers better integration with back-office systems so manufacturers can pull more information from the factory floor and feed it into enterprise applications such as inventory control.

- TCP/IP lets real-time manufacturing information be available across the company to enable remote monitoring and diagnostics of equipment and processes.

- Manufacturers save money because Ethernet is significantly less expensive to

See GE Cisco, page 26

Stallion corrals remote office links

Device performs inverse multiplexing to combine DSL, cable and other connections.

■ BY TIM GREENE

SQQUEL, CALIF. — Stallion Technologies is introducing gear to give branch offices fatter Internet connections and to provide back-up links if primary connections fail.

Stallion's epiPe 2344 device bonds multiple types of Internet connections — such as DSL, cable modem, ISDN and dial-up modem — into a single logical link, so users can sign up for whichever connectivity services are available in their particular areas.

The device can load balance among as many as seven connections and if any fail, will use the rest to continue sending and receiving traffic. Users can configure epiPe to call up extra bandwidth for user-selected applications and turn off the extra bandwidth when the application isn't being used.

The epiPe 2344 device is intended for sites that do not warrant relatively expensive T-1 lines or frame relay services, the company says, but that need fast access to corporate networks. The company is looking to entice cost-conscious Internet VPN users that want to boost performance on



Stallion Technologies' epiPe 2344 can combine up to seven Internet links into one via four Ethernet and four serial ports.

tight budgets.

More and more users are looking to bond access lines, according to unpublished research by Infonetics Research. "It used to be once you exhausted a T-1, the next step up was a T-3. With bonding, you get more bandwidth at a lower cost," says Jon Cordova, director analyst with Infonetics.

Users want to make sure they buy business-class DSL if they use DSL because that comes with better guarantees and symmetrical upload and download speeds, Cordova says. And they must also check

whether DSL is available in the locations where they want it.

Having multiple lines as backup is important as well, Cordova says, citing the recent demise of some DSL providers that left corporate sites without high-speed Internet access.

Stallion uses technology called multilink IP that fragments and distributes Internet traffic among as many as seven separate links.

A second epiPe at the receiving end collects the traffic as it arrives from the multiple routes it takes and reassembles it.

The idea of bonding access lines is also known as inverse multiplexing — taking a traffic stream and breaking it up to run over multiple lines, then multiplexing it back together at the receiving end. Multi-link Point-to-Point protocol and multilink frame relay are examples.

Vendors such as Copper Mountain and Netopia support DSL bonding. Siemens is introducing business-class routers to which it plans to add bonding capabilities, Cordova says.

EpiPe, scheduled to ship before July, will cost \$1,600.

Stallion: www.stallion.com

Storage Takes

■ **The Storage Performance Council**, a consortium of industry vendors, announced last week the first set of benchmarks for testing direct- or network-attached storage devices such as Fibre Channel arrays or host bus adapters. The SPC released the **SPC-1 Test Kit** benchmark and the **Goliath Testing Tool**. Members of the SPC developed both utilities. SPC-1 and Goliath recreate I/O workloads by letting storage resources be partitioned among applications and assigning independent workload streams to them. SPC-1 runs on Solaris, Windows and IBM's AIX. The SPC-1 benchmark and Goliath are available to developers, end users and integrators starting at \$2,500 and \$20,000, respectively, for customers who are not members of the SPC. SPC-1 is expected to be available in June, followed by the availability of Goliath in the third quarter.

www.storageperformance.org

■ **Red Hat** has released the latest version of its Linux software, adding the newest version of the **K Desktop Environment** graphical desktop interface and the ability to configure a personal firewall at installation. **Red Hat Linux 7.3** is priced the same as Version 7.2, which Red Hat released in October: \$60 for Red Hat Linux 7.3 Personal for individual users, and \$200 for Red Hat Linux 7.3 Professional, an offering aimed at small businesses that includes several months of support.

The software is available for download at Red Hat's Web site. In addition to KDE 3.0, the new version of Red Hat Linux incorporates Ximian's Gnome 1.4, the Mozilla Web browser, improved support for digital cameras, and videoconferencing and project management software. A complete list of Red Hat Linux 7.3's features is available on Red Hat's Web site.

www.redhat.com

TOLLY ON TECHNOLOGY

Kevin Tolly

**Infrastructure****Users dish out dose of VoIP reality**

requirements folks like you have, in order to better guide vendors in their product development.

First, a little background about the survey. Of the survey base, 90.5% are responsible directly for making VoIP technology adoption decisions and 64% have direct product purchase authority. More than 76% of the respondents specify, recommend, approve or influence the purchase of VoIP gear across the entire corporation, while almost 12% wield equal clout across multiple departments and another 12% have such responsibility for more than one organization.

When asked about their organizations' plans for VoIP, 51.2% of respondents said the company plans to prototype VoIP soon (with at least \$100,000 committed in the 2002 budget for VoIP purchases). In addition, 34% say that VoIP already is in production mode, with at least \$100,000 committed in infrastructure investments. And almost 5% of respondents say they have completed VoIP installations, while 10% have no present plans to adopt.

One of the biggest surprises of the sur-

vey came when we asked users why they are deploying VoIP. Here, 52% said they are deploying VoIP to reap savings brought about by merging separate voice and data services onto a parallel wiring infrastructure, and almost 35% cited savings from toll-charge reduction. Only 13% specified the benefits from converged applications as the reason for VoIP deployment.

What we're looking at here is a classic chicken-and-egg scenario. There will be no significant use of converged applications until we have a converged environment. This demonstrates a very pragmatic view of direct return on investment (ROI), given the economy. Yet we would have expected that most users were looking to VoIP to unify messaging and to build up more sophisticated call centers, not cite the more mundane infrastructure and toll-charge issues.

Another significant finding of the survey surfaced when we asked about the single greatest barrier to deploying VoIP. Here, almost 40% of respondents listed "costs/insufficient ROI," while 27.5% cited "implementation complexity."

While the survey points out there is an emphasis on ROI and cost savings, any initial focus on infrastructure consolidation "is not the real value of VoIP," says Greg Merritt, vice president of Enterprise Networks at Nortel, who participated in a recent Tolly Group Webcast about the survey. "The real benefit of VoIP is to drive greater productivity by creating new applications that foster productivity among users," Merritt says.

So there you have it. The benefit from VoIP is in driving productivity gains. I'm not convinced enterprise architects agree. If you are implementing VoIP, have already deployed it or are just thinking about it, let me know where you stand. Is the primary driver for VoIP the promise of productivity gains? Or is it the more practical cost savings from merging voice and data onto a unified infrastructure for avoiding toll charges? Let me know what you think.

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Manasquan, N.J. He can be reached at ktolly@tolly.com.

If you want any evidence about the impact of lean economic times on the networking economy, all you have to do is look at the business model for voice over IP.

Conventional wisdom says that the business case for VoIP should be based on productivity gains from new converged applications. But, according to a recently conducted Tolly Group survey of 50 leading enterprise network architects, investment pressures brought about by recessionary times are dispelling conventional thinking about deployment of the technology.

In The Tolly Group's 2002 Enterprise Architect User Requirements Study (see information at www.tolly.com), we set out to take a snapshot of the VoIP technology

GE Cisco

continued from page 25

buy and maintain than special-purpose protocols, and it lets them simplify their network architectures for additional savings.

Despite its advantages, industrial Ethernet was slow to catch on during the recent recession. GE Cisco had anticipated revenue of \$100 million by 2003. That goal is now pushed out until 2004. Similarly, GE Cisco expected to grow to 50 employees by the end of 2000. Instead, the unit has remained at 30 employees.

The outlook for GE Cisco is improving because the long-anticipated shift to Ethernet and TCP/IP is starting to happen,

Every feel we get from the manufacturing sector is that spending is happening again. ■

Robert McKeel

Vice president of marketing, GE Cisco

industrial automation experts say.

"The market is actively interested in this concept," says Karim Al-Husseini, senior manager with Cap Gemini Ernst & Young's adaptive-manufacturing practice, which has formed an alliance with GE Cisco.

"The manufacturing operation has been ignored in the past, while lots of investment has been funneled into enterprise resource planning systems like SAP and Oracle," Al-Husseini says. "But then you realize that unless you get critical information from the plant floor, you're always going to be off in your planning and accuracy."

Al-Husseini says he sees growing interest in industrial Ethernet from his automotive and high-tech manufacturing clients.

"The next step in efficiency and productivity is bridging the gap between the shop floor and the critical business systems to share data," Al-Husseini says. "Ethernet is an enabler of that."

One company using GE Cisco in its migration to industrial Ethernet and TCP/IP is BOC Edwards, a U.K. supplier of vacuum pumps, chemical and gas distribution systems and instruments used in semiconductor fabrication plants. The company's chemical-management division already uses GE's Cimplicity software to manage its systems at customer sites. Now it wants to add the ability to provide remote diagnostics of its equipment over the Internet.

"E-diagnostics is something we are starting to find our customers want," says Nigel Gibbins, business development manager for networking and control at BOC Edwards. "We believe it will reduce downtime and help us develop closer working relationships with the [fabrication plants]."

Gibbins says BOC Edwards will work with GE Cisco to design an e-diagnostic infrastructure during the next six to 12 months, after which the company will offer it to its customers.

"We see this as a market differentiator," he says. "Using remote diagnostics, we can provide specialist support far more speedily and eliminate the wait for our customers. We will be able to use our support specialists more effectively and, as a side benefit, reduce the amount they have to travel."

Gibbins says BOC Edwards is seeing an increasing demand for Ethernet-based communications across its product lines and from other parts of BOC Edwards.

In addition to BOC Edwards, GE Cisco re-

cently signed up new customers such as Minnesota Corn Processors and Advanced Glass Fiber Yarns. A maker of corn syrup additives that go into products such as Pepsi, Minnesota Corn Processors is using GE Cisco as a consultant on a complete refresh of its IT infrastructure. Advanced Glass Fiber Yarns, which manufactures heavy-duty textiles for use in seat belts, has hired GE Cisco to build an intermediary data warehouse between its manufacturing and ERP systems.

"In the first part of this year, we've seen a spike in integration work," McKeel says. "Some of the projects from last year were pushed into this year. And we're also seeing new integration efforts."

McKeel says the manufacturing industry may benefit from the two-year delay in migration to industrial Ethernet because the standards bodies have had extra time to define the protocols and interfaces needed to work with legacy special-purpose gear.

"The folks that make all the end devices are enabling their devices to use Ethernet, and that's a big driver of adoption," McKeel says. "It makes our job easier and gives us a common ground to work on." ■



More online!

See how manufacturers are replacing legacy control networks with industrial Ethernet to save money and boost performance.

DocFinder: 9337

Disk-drive device speeds backup of mainframe

■ BY DENI CONNOR

BURLINGTON, MASS. — Bus-Tech has unveiled an appliance that links IBM mainframes with Fibre Channel or Ultra SCSI storage devices, enabling users to speed data backups by doing so on disks instead of tapes.

The Mainframe Appliance for Storage (MAS) functions as a virtual tape appliance — disk drives look like tape drives to a firm's back-up software. The MAS connects to an IBM eServer zSeries machine via an Enterprise System Connection (ESCON) adapter. In a traditional configuration, a mainframe connects via one ESCON adapter to as many as 16 IBM 3840 tape drives.

"The MAS improves the batch turnaround for our customers," says MAS user Kevin Sweeney, data center manager for service bureau Data Distributors in Methuen, Mass. "We used to have 130,000 tape cartridges we needed to pick out data from. If we can retrieve this data once from the MAS system, we can see a 30% to 65% performance increase over tape."

"It's very frustrating to get an error on the 199th out of 200 cartridges you are loading [in retrieving] a file — you have to do the whole thing all over again," he says.

The MAS is a rack-mounted appliance with dual hot-swappable power supplies and fans. To further maximize uptime, it ships with a mirrored disk that hosts the embedded operating system and virtual tape software. The product starts at \$27,500.

Bus-Tech: www.bustech.com

NetWorker

■ PRODUCTS, SERVICES AND STRATEGIES
FOR TYING TELEWORKERS TO THE ENTERPRISE

Wi-Fi goes the last mile

■ BY MIKE AVERY

Two years ago, I moved from Dallas to the wilds of Colorado, to a small town of about 5,000 people. It's beautiful here, and now that the culture shock has faded, I can't imagine living anywhere else. But what I do miss is the availability of affordable high-speed network connections.

While I can get consumer-grade cable and satellite service, neither suits my small-business needs. While the speeds are certainly better than dial-up, I need static IP addresses to run my Web and e-mail servers. Not only does the local cable company not offer them, but it also changes customers' dynamic IP addresses every 15 minutes, preventing heavy users and small office/home office businesses from using a workaround such as Dynamic DNS Network Services to stay available on the network. Sub-\$100 satellite services don't offer static IPs, and performance is slower than cable because of signal latency.

Recently, while working on a story about 802.11b technology, I learned I could use off-the-shelf 802.11b wireless gear to create a wireless link to my ISP. It seemed like my only hope of getting a fast business connection at an affordable price.

So I convinced Kelly Coughlin, the owner of my ISP, Peak Computer Resources (www.pcgs.net), of the benefits of installing a wireless link — namely, that we would

select and set up the equipment together, and then he could offer the service to other customers in the area. After some research and discussions with members of the Bay Area Wireless Users Group and HAM radio operators, we decided to put an omnidirectional antenna on Coughlin's roof so he could cover the valley with one antenna, then boost the signal with an amplifier, which would reduce the size and cost of his potential customers' antennas.

We opted to go with Linksys WAP11 access points at both sites. While it's a lower-end access point designed for use indoors, it includes external connectors to which you can attach an antenna for greater distances. Next, we turned to customer antennas. After checking around, we selected Hyperlink Technologies antenna kits. We could have saved a bit of money by buying individual parts from other vendors, but Hyperlink bundled everything we needed, which meant there would be no vendor finger-pointing if something broke.

A key issue in this climate is antenna icing, which could result in tremendous signal losses, or worse, no connection. The ISP's omnidirectional antenna is unlikely to build up ice because it is small and vertical. However, the customer site antenna is larger, making ice a serious concern. Other issues we debated involved power (or gain) and cost. Gain refers to how much more signal an antenna will deliver than a straight piece of wire. More gain is usually better, but also more expensive.

Some HAM radio operators felt the best choice was a Yagi antenna enclosed in a plastic case called a "radome." Others said a parabolic antenna made of metal rods was superior. While the Yagi in a radome was considerably more expensive than the parabolic antenna, in the end we felt the extra cost was worth it.

Once we installed both ends, we discovered the Linksys WAP11 lacks software for indicating the signal strength of the link. We tried repeatedly to line up the antennas without success. In the end, I connected the antenna on my end to a laptop with an Enterasys Networks' RoamAbout wireless card. I checked signal strength and lined up the antennas. However, when I reconnected the Linksys WAP11, we found we still didn't have a reliable link. It seems the Linksys WAP11 didn't have the signal strength for the long distance without also adding an amplifier or a much higher gain antenna on my end — neither solution we were willing to pay for.

Welcome wireless

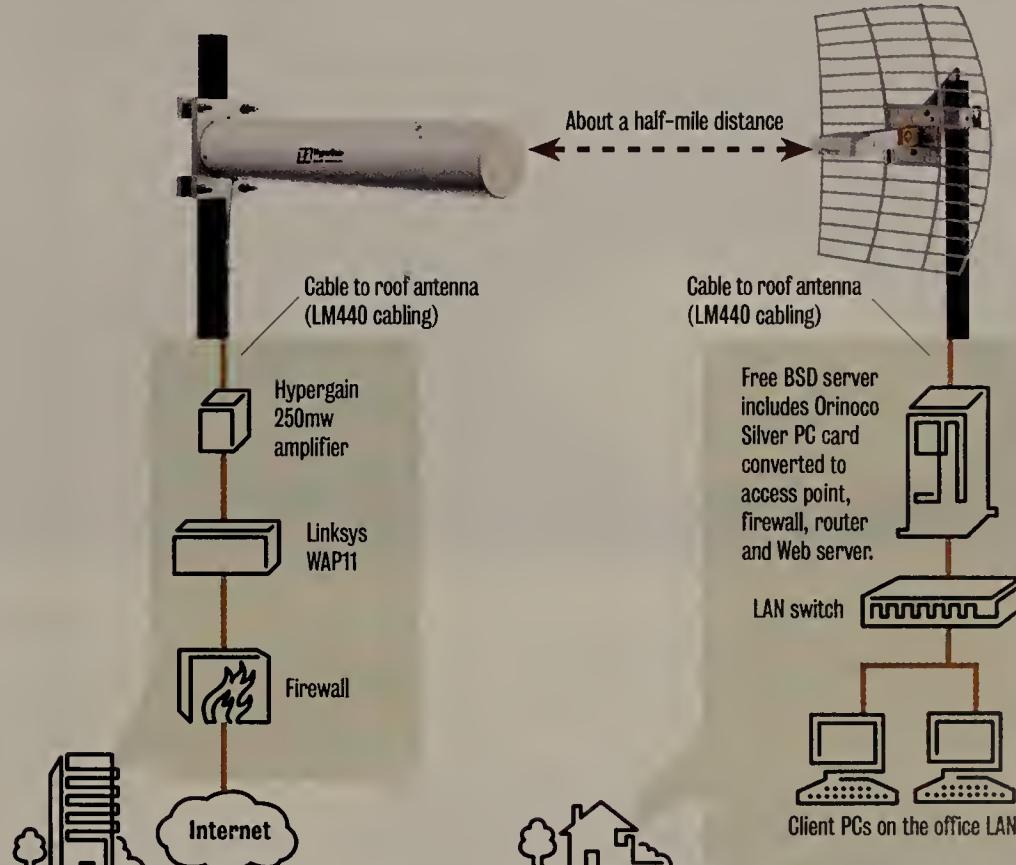
Setting up a WiFi link between the author's home and his nearby ISP was easy, once they figured out which types of antennas and equipment to use.

ISP office setup

8db gain Hyperlink omnidirectional antenna on ISP's roof lets the ISP cover the valley with a wireless signal.

Remote home office setup

15db Yagi Hyperlink antenna on Avery's roof has a smooth service that makes it less likely to accumulate ice than the parabolic grid antenna.



Because the Agere Orinoco Wireless Silver PC Card already had demonstrated it worked, we used it to create a replacement access point. We put the card into the PC using an ISA to PC Card adapter, loaded the free Unix operating system FreeBSD onto the PC, and turned the system into an access point, router, NAT server and firewall to connect our local LAN to the Internet.

At the end of every project, we ask ourselves what we'd do differently next time. I would listen to the folks at Hyperlink who suggested we use the Cisco 350 series or Intel Pro series access points over the Linksys WAP11. The Linksys WAP11 costs about \$160, vs. about \$1,100 and \$825, respectively, for the Cisco and Intel gear.

We miscalculated the maximum power amplifier Coughlin could use, so we don't have quite the range if we'd gone with a larger amplifier. Still, driving around town shows we have good coverage, and the total turnkey cost was less than \$1,500. I've disconnected the phone line I was using to stay connected to the Internet. I'd planned

on keeping it as a fall-back, but in the three weeks the link has been up, there have been no outages, so that is an unwarranted expense. I've checked our speed on different speed test sites on the Internet and consistently see throughput between 400K and 600K bit/sec.

Streaming video and audio work well. Coughlin charges \$70 per month for unlimited access. His current setup should support 20 to 30 additional users. If you're in an area ill served by DSL or cable, show your ISP this story, and point it to the Wireless ISP trade association site.

Avery is a technology writer in Gunnison, Colo. He can be reached at mavery@mail.otherwhen.com.

More online!

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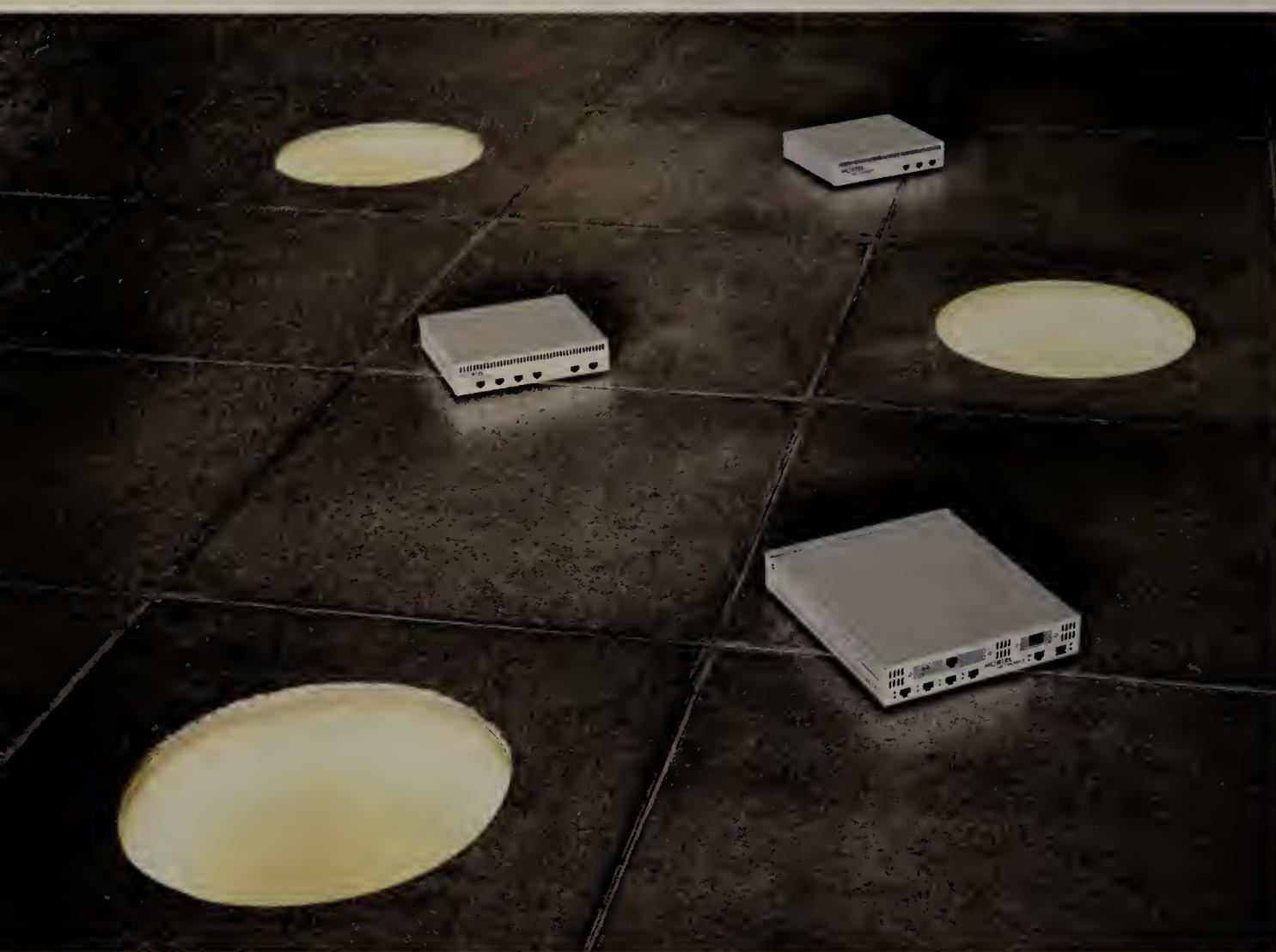
DocFinder: 9336

Short Takes

SMC Networks

last week announced its DOCSIS 1.1 certified EZ Connect USB cable modem and an 802.11b Universal Serial Bus adapter. The Data Over Cable Service Interface Specification 1.1 brings quality of service features, media access control and service flow support for multimedia services and SNMP for remote management. The clip-on USB wireless adapter is the size of a cassette tape and can be attached to a notebook lid or any other place on the desk to optimize the signal. Both are available later this month; the cable modem costs \$129, the USB adapter \$118. www.smc.com

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SERVICE PROVIDER/CARRIER

- 101 ASP/APIP/Web Hosting/Videoconferencing
- 102 BLEC/MTU/Campus Service
- 103 Broadcast Television/Radio/Network Affiliate

- 104 Cable Television Network

- 105 Carrier Service Reseller

- 106 Backbone Network/Fiber Net

- 107 Competitive Access Provider

- 108 Data LEC (DLEC)

- 109 Internet Service Provider (ISP)

- 110 Local-Exchange Carrier (LEC)

- 111 Network Service Provider/10

- Ethernet Operator

- 112 Satellite Service Operator

- 113 Public Utility/Power Grid Op

- 114 Virtual Private Network Pro

- 115 Wireless-LMDS/MMDS/Fixed

- Wireless Operator

- 116 Wireless-Mobile (Cellular/PC) Service Provider

CORPORATION/INSTITUTION

- 117 Communications Equipment

- Manufacturer

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- 119 Financial Institution/Venture Firm

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Select audience demographics. While we require that you complete the following, if you do not want your name listed to our exhibitors, please check the following box:

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 129 Executive Recruiter/Search Firm
 130 Research & Development
 131 Software Development
 132 Dealer/Distributor/Agent
 133 VAR

OTHER
 134 Association
 135 Advertising
 199 Other

2. IF YOUR COMPANY IS A SERVICE PROVIDER, PLEASE INDICATE ALL AREAS OF BUSINESS: (check all that apply)

201 ASP/AIP/Web Hosting/Videoconferencing
 202 BLEC/MTU/Campus Service Provider
 203 Broadcast Television/Radio/
Network Affiliate
 204 Cable Television Network
 205 Carrier Service Reseller
 206 Backbone Network/Fiber Network
 207 Competitive Access Provider/CLEC
 208 Data LEC (DLEC)
 209 Internet Service Provider (ISP)
 210 Local-Exchange Carrier (LEC)/ILEC
 211 Network Service Provider/10 Gigabit Ethernet Operator
 212 Satellite Service Operator
 213 Public Utility/Power Grid Operator
 214 Virtual Private Network Provider (VPN)
 215 Wireless-LMDS/MMDS/Fixed
Wireless Operator
 216 Wireless-Mobile (Cellular/PCS)
Service Provider

3. PRIMARY JOB FUNCTION: (check one only)

301 Accounting/Billing
 302 Consulting

4. MY AREA OF INTEREST IS:
(check all that apply)

303 Contracting
 304 Corporate Management
 305 Education/Training
 306 Engineering/Technical
 307 Financial Services/Leasing
 308 Industry Analyst
 309 Internet Services/Web Design & Development
 310 Investment Analyst/Research
 311 Investment Banking/Venture Capital
 312 Legal/Regulatory
 313 MIS/Network Operations/
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 314 Product Management
 315 Purchaser/Corporate Buyer
 316 Research & Development
 317 Sales/Marketing
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 399 Other

5. PRODUCT/TECHNOLOGY/SERVICE INTEREST: (check all that apply)

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 504 Components
 505 Computer Telephony
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 508 Customer Premises Equipment
 509 Enhanced Services
 510 Intelligent Networks/AIN
 511 Internet/Intranet Systems
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SUPERCOMM Plenary Panel — Global Communications Strategies

Sunday, June 2, 5:00 pm – 6:30 pm

Chairperson: **Scott K. Erickson**, Senior Vice President, Sales & Marketing, Mobility Segment, Lucent Technologies

Panelists: **Andre Dahan**, President & CEO, Mobile Multimedia Group, AT&T Wireless • **Kurt Hellström**, President & CEO, Ericsson • **Nobuharu Ono**, President & CEO, NTT DoCoMo USA • **John W. Sheridan**, President, Bell Canada

SUPERCOMM Plenary Panel — Meeting Future Challenges of Large Enterprise Networks

Monday, June 3, 8:15 am – 9:15 am

Steve Heidt, President, Distributed System Services, I-Solutions, EDS

 **Kenneth Lacy**,
Senior Vice President
& CIO, United Parcel Service

 **Anthony E. Scott**,
CTO, Information Systems
& Services, General Motors

SUPERCOMM Opening Keynote Address

Tuesday, June 4, 8:00 am – 8:45 am

 **Craig R. Barrett**,
President & CEO, Intel Corporation

SUPERCOMM Morning Keynote Address

Wednesday, June 5, 8:15 am – 9:00 am

 **John T. Chambers**,
President & CEO, Cisco Systems

SUPERCOMM Plenary Panel — Advancing to the New Network: Winning Solutions

Wednesday, June 5, 5:15 pm – 6:45 pm

Chairperson: **William L. Smith**, President, Interconnection Services and CTO, BellSouth

Panelists: **Mark A. Floyd**, President & CEO, Siemens Information & Communication Networks Inc.

• **Pieter Knook**, Vice President, Network Service Providers, Microsoft Corporation • **Sean Maloney**, Executive Vice President & GM, Communications Group, Intel Corporation • **Michael L. Margolis**, President & CEO, Tekelec • **Brian W. McFadden**, President, Metropolitan Optical, Nortel Networks • **Trey Smith**, CTO, Cable & Wireless Global and President, Cable & Wireless North America • **Alistair Woodman**, Director, Marketing Voice Technology Center, Service Provider Line of Business, Cisco Systems

SUPERCOMM Plenary Panel — Industry Technology Directions: An Analyst View

Thursday, June 6, 8:00 am – 9:00 am

Moderator & Panelist: **John P. Ryan**, Chief Analyst, RHK

Panelists: **Joseph Baylock**, Group Vice President, Gartner Group • **Beth Gage**, Vice President, Consulting, TeleChoice • **Peter Jarich**, Director, Global Broadband Research, The Strategies Group • **Robert J. Rich**, Executive Vice President, Research & Consulting, The Yankee Group

SPECIAL PAID LUNCHEON PRESENTATIONS

 **GMF/EntNet/IEC Luncheon Presentation**
Monday, June 3,
1:00 pm – 2:00 pm
Vinton G. Cerf, Senior Vice President, Internet Architecture & Technology, WorldCom

 **IEC/EntNet Information Industry Luncheon Presentation**
Tuesday, June 4,
12:15 pm – 1:45 pm
Lawrence T. Babbio, Jr., Vice Chairman & President, Verizon Communications

 **IEC/EntNet Information Industry Luncheon Presentation**
Wednesday, June 5,
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New tools to tame Microsoft Exchange

■ BY JOHN FONTANA

Network executives looking to better monitor and manage their installations of Microsoft Exchange server now have two new options to evaluate.

IntelliReach last week released ExRay for Exchange 1.0, a health assessment tool that allows for proactive monitoring and management of Exchange 2000 and 5.5.

Also, eIQnetworks recently released MailAnalyzer 1.0, a Web-based reporting and analysis tool to track usage patterns in

Exchange.

With ExRay for Exchange, users can get status reports on the performance of connections to the e-mail server and traffic routes between both internal and external servers. An alerting feature flags problems and sends an e-mail or page to an administrator. IT staff members also can monitor the inner workings of Exchange for potential problems.

"The route monitoring is helpful because I depend on other groups within the company to supply the network," says Bruce Kane, enterprise Exchange administrator for an electrical component manufacturer he asked not be named. "I know that our route to Brazil is down more than it is up, and I can see how other links between servers perform over time."

See Messaging, page 32

Short Takes

■ Two vendors last week announced service offerings aimed at companies that want to track Web site traffic.

Omniture is the new name of MyComputer.com, and **SiteCatalyst** is its new service for analyzing Web site traffic and identifying customer buying trends. Separately, **Coremetrics** unveiled its **Marketforce** marketing analytics service, which is built on the company's revamped XML and Java-based architecture. Both companies offer a hosted service whereby they capture, store and crunch visitor Web activity, which is tracked through JavaScript embedded in each Web page. Pricing for the SiteCatalyst service, is between \$200,000 and \$500,000 per year, depending on site traffic, while Coremetrics charges about \$25,000 per month for a high-volume site.

■ **Altaworks** last week at the IBM DeveloperWorks Live conference announced Version 1.5 of its Panorama performance and availability management software for application servers. Panorama 1.5 automatically can detect the causes of performance problems down to the sub-component level of Java servlets. Also new to this version is support for IBM's WebSphere 4.0, DB2 database and Performance Monitoring Infrastructure API. Pricing starts at \$25,000.

Messaging monitor

IntelliReach has released a monitoring tool for Microsoft Exchange called ExRay, which provides, among other features, a real-time evaluation of the routes between Exchange sites on a network.

The screenshot shows a web-based dashboard titled 'FxRay' from 'IntelliReach'. It displays a table of email routes with columns for Route, Status, Duration, and Healthy Time %. The routes listed include Boston, Chicago, France, HQ, Japan, London, Los Angeles, New York, and Paris. Most routes are marked as 'OK' or 'Slow', except for one which is 'Down'. The healthy time percentages range from 88.9% to 100.0%. A legend indicates that green means OK, yellow means Slow, and red means Down. A note at the top right says 'ExRay returns a color-coded report on the status of e-mail routes along with other statistics.'

Vendor improves apps mgmt. formula

■ BY DENISE DUBIE

MCLEAN, VA. — Managed Objects next week will unveil software that promises to help companies better manage applications, but that may require more upfront work than some customers can spare.

The new edition of the company's flagship Formula software can store the sort of data that earlier versions could correlate from other management systems, letting customers track service levels of network devices and applications over time rather than just in real time. Companies can use Version 3.0, like previous versions, to make sense of incoming data on everything from server response time to application usage collected by products such as Computer Associates' Unicenter, IBM/Tivoli's NetView and Hewlett-Packard's OpenView software.

Also new is a Formula application called Business Service Analyzer that uses performance information about applications and network infrastructure to help companies understand how different applications affect each other under various conditions. For example, the software could let a customer know how its online trading application affects its quote delivery application at peak times, perhaps signaling the customer to provide more bandwidth or server resources to the quote delivery program. The new application costs about

\$50,000.

"These new features will enable us to analyze the historical performance of overall services such as equities trading, along

with technology components such as servers," says Gerald Foy, director of enterprise management for IT consulting firm

See Managed, page 32

Micromanage it

Managed Objects' Formula 3.0 software includes a portal that endusers, managers and customers can customize.

Users can identify how problems can adversely affect business services.

The software also can display how IT performance affects specific customers.

The screenshot shows a web-based portal for Managed Objects' Formula 3.0. The interface includes a navigation bar with links like Home, Help, Log Off, and a search bar. The main area features several performance monitoring dashboards: 'CPU Utilization' with a bar chart, 'Total Alarms' with a pie chart, 'Trend' with a line graph, 'Business Services' with a bar chart, and 'IT Support' with a table of alarms. A sidebar on the left lists 'My Networks' and 'Managed Objects' categories. A large callout box on the right states: 'Network managers can configure Formula to keep the portal up to date with their top five concerns.'

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Fast forward as theft

that skipping ads on a recorded TV show was theft.

• Second, *The Mercury News* in San Jose reported that a judge in Los Angeles ordered SonicBlue, the maker of ReplayTV, to develop software within the next 60 days to "record every click from every customer's remote control." In particular the judge wants to have a record of which shows individual users copy, store and view; what commercials they skip; and which programs they send to other users.

In the *Cableworld* interview, Kellner said skipping ads is theft because, "Your contract with the network when you get the show is you're going to watch the spots. Otherwise you couldn't get the show on an ad-supported basis. Any time you skip a commercial ... you're actually stealing the programming."

He does have a point, but it's a point ren-

dered invalid by the real world. A world in which CNN replays the same, often mind-numbingly stupid ad twice an hour for months at a time. Is it in anyone's benefit, particularly Dell's, if I am forced to watch that weird Dell dude recite the same dumb dialogue 100 times? In my case it would guarantee that I would never buy a Dell product — to do otherwise would be supporting mental torture. It is possible to create ads that people want to see, though that might be hard to tell while watching CNN.

There are already DVDs sold where the DVD player doesn't let you skip the 10-minute ad at the start of the movie. If Kellner had his way, you wouldn't even be able to mute the sound on commercials you hate. I wonder if he reads all the ads in the Sunday paper, just to be consistent.

Separately, the implication of the judge's order in the SonicBlue case is that the

Kellners of the world might be able to check to see that you are following their rules. Because there is no technical reason for a device such as ReplayTV to send any reports to the manufacturer, the judge is ordering a vendor to spy on its customers and modify its products to make that possible. Not a good precedent at all.

What's next — real-time reports to Microsoft when your company uses a non-Microsoft product? I believe in a balance between the rights of copyright holders and the rest of the world. These two incidents indicate to me that there is currently an increasing tilt away from the users.

Disclaimer: Harvard is made up of users and some filters, but the above is my view.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

This is yet another column about the copyright industry. It might seem like I'm fixated on the topic and maybe that's somewhat the case, but it's because I fear copyright holders want to turn the Internet into something that is legally limited to providing the services they think are OK.

There were two triggers for my revisiting the topic:

- First, in an interview with *Cableworld* magazine, Jamie Kellner, the head of ad-supported television for Turner Broadcasting (the folks that bring you CNN), said

Avatier seeks to ease password protection

■ BY JOHN FONTANA

Knowing that the most porous spots in a corporation's network security defense are sometimes the simple passwords devised by not-so-clever end users, Avatier this week unveiled an administrative tool that sets and enforces policies for creating passwords on Windows-based systems.

The company's Password Bouncer Deluxe includes software that lets administrators create policies that govern how a password must be constructed using a combination of letters, numbers and/or special characters. Once created, those policies require users to create passwords that are hardened against brute force attacks from hackers, either internally or externally.

Corporations often insist employees change passwords at regular intervals as a security precaution. All too often, however, users choose passwords that are easy to remember but susceptible to hackers.

"People spend so much on firewalls and to protect their [network] perimeters, but passwords can be the weakest link," says Nelson Cicchitto, CEO of Avatier. "We extend the password policies in Windows NT and Active Directory so your passwords are harder to hack."

Natively, NT has policies that restrict password length and history, which prevents the reuse of passwords for a certain amount of time. Windows 2000 Active Directory adds requirements to include mixed case, numbers or special characters.

Password Bouncer increases those requirements. Through a wizard-driven interface, administrators can set policies that force the use of uppercase and lowercase letters and the position of certain charac-

ters such as requiring the fourth character in a password be a number or restricting passwords that end in certain characters.

Administrators can exclude certain users from the password policies.

The software installs on a Windows primary or back-up domain controller, and pushes out its filters to any server on to the

network. Users can manage multiple domains from a single console so rules are consistent across an organization.

Passwords are checked when they are created, and administrators can post an HTML document on an intranet site explaining the password policies.

Password Bouncer can work with an-

Messaging

continued from page 29

Kane says the big benefit is that he can steer clear of problems.

"I want to know something is broken before some user calls. Most people won't notice a short outage," he says.

ExRay also supports the monitoring and measuring of performance marks such as message delivery times and downtime, as well as the time it takes to complete repairs.

"This can help you establish and enforce service-level agreements within your organization," says Michael Osterman, president of Osterman Research.

The software also provides the ability to publish real-time reports to an intranet site so non-IT staff can check on the health of Exchange instead of calling the help desk if they experience a problem.

IntelliReach plans to combine ExRay with three tools for tracking e-mail content and usage that it acquired last month when it purchased MicroData Software. The tools are Cameo 2.0 for real-time e-mail monitoring, Cameo Recon for managing stored e-mail and Melia 2.0, for usage reporting.

ExRay, which is based on technology from IntelliReach's Control 2.5 for Novell GroupWise, installs on one Exchange server and can monitor hundreds of servers. It also requires Windows 2000 and Internet Information Server. ExRay is priced per user account with installations starting at \$10,000 for large organizations.

MailAnalyzer from elQnetworks is designed to help administrators understand the e-mail traffic that Exchange generates.

The Web-based tool lets administrators track e-mail use, providing data on traffic including peak times, delivery times and mailbox usage. It also tracks the prolific users of e-mail and the size of attachments being sent.

Usage reports can be conducted per server, department, location, individual or specific time. Reports are produced in HTML, Microsoft Word, Excel or PDF formats.

MailAnalyzer gathers data from Ex-

change's message-tracking logs, the Exchange directory, Active Directory and Windows NT Event Logs. It works with Exchange 5.5 and 2000.

MailAnalyzer costs \$400 for use on up to five Exchange Servers. The company plans to release versions for Lotus Notes and Sendmail later this year.

Both products compete with software from BindView, DYS Analytics, Hewlett-Packard, MessageOrte, NetIQ, Quest Software and TNT Software.

IntelliReach: www.intelireach.com; elQnetworks: www.elQnetworks.com

Managed

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CSC in El Segundo, Calif.

Foy has used Formula products for about two years and says the software correlates data from HP, CA, BMC Software and IBM tools that CSC uses to manage 22,000 desktops, 1,200 Unix servers, 600 NetWare servers and 2,200 legacy applications. CSC says using Managed Objects software saved it from integrating applications itself, a project that the company estimates would have cost \$5 million. (Formula costs from \$250,000 to \$400,000.)

Although effective once deployed, Formula requires quite a bit of upfront work to get started, one analyst warned. "If users buy a product [such as Formula], they must be prepared to configure it. Users must understand perfectly what the appli-

cations in their infrastructure are and how they are connected," says Jean-Pierre Garbani, an analyst with Giga Information Group. He says "mature" IT managers can garner results from tools such as Formula, but if the "IT person doesn't understand what they want from their business application" the product won't have much use.

Bill Gassman, an analyst with Gartner, agrees that Formula is for "leading-edge" companies that understand how IT affects their business applications and ultimately, the bottom line. Managed Objects has been able to differentiate itself from others, such as Tivoli, through broader integration with other vendors' offerings.

Formula consists of server software that runs on Windows NT, Linux and Unix, and provides reports via a Web-based console. It uses custom adapters and XML to communicate with other management tools. ■

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Service Providers

■ THE INTERNET ■ EXTRANETS ■ INTEREXCHANGE AND LOCAL CARRIERS
 ■ WIRELESS ■ REGULATORY AFFAIRS

BellSouth beefs up DSL, guarantees

■ BY MICHAEL MARTIN

BellSouth last week unveiled a pair of business-class DSL offerings aimed at customers looking for faster speeds and committed bit rate services.

The first service, BellSouth FastAccess Speed 384, gives users upload and download speeds of 384K bit/sec.

What sets the service apart from other regional Bell operating company DSL offerings is that the 384K bit/sec is a com-

mitted bit rate, as opposed to the uncommitted bit rate offerings other RBOCs provide, says Matthew Davis, an analyst with The Yankee Group.

"It's a bit different for a DSL provider," Davis says. "It's not just the best-effort service most providers offer."

The second new service is FastAccess Speed 768, which provides upload speeds of up to 512K bit/sec and download speeds of up to 768K bit/sec. Unlike the 384K bit/sec offering, Speed 768 is a best-effort uncommitted bit rate service.

Both offerings include a static IP address, domain name service, up to five e-mail addresses and a back-up dial-up account. BellSouth also gives users a self-install option, which lets customers avoid waiting for a technician to visit. Both also come with 30-day installation guarantees and 99.9% network availability guarantees.

BellSouth's existing business service,

FastAccess Business, gives customers speeds of up to 1.5M bit/sec downstream, but only up to 256K bit/sec upstream.

Davis says the new services prove BellSouth is getting more serious about expanding its largely consumer DSL base to include small and midsize business customers, and the remote offices of larger companies.

"The consumer model doesn't generate revenue, so I'm not surprised they're moving in this direction," he says.

Davis says he thinks all the RBOCs will change their largely consumer-class DSL focus to include the business market, especially now that cable providers are targeting the small-business market.

"Now that they've built out their infrastructures, they're finally looking to make money," he says.

The BellSouth offerings, like all RBOC offerings to date, are based on asymmetrical DSL, rather than the symmetrical

DSL used by Covad Communications and a few other providers. BellSouth, and other RBOCs, engineer the upload and download rates to offer more symmetrical services.

FastAccess Speed 384 sells for about \$200 per month. FastAccess 768 sells for about \$220 per month.

BellSouth: www.bellsouth.com



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Which is best for your remote-access needs
— DSL or cable?

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Short Takes

■ **EarthLink** is teaming with **Equinix** to improve private peering with other service providers. EarthLink is using Equinix's **GigE Exchange** service at data centers in Washington, D.C., and Dallas, where the ISP can exchange traffic with several service providers. Traditional private peering requires an ISP to dedicate two high-speed connections to exchanging traffic with only one provider. Within the Equinix data centers, EarthLink exchanges traffic with multiple ISPs and network service providers with which it has private-peering agreements. The ISP has two OC-12 connections from its backbone to both Equinix sites. EarthLink will continue to use public-peering and traditional private-peering connections to exchange Internet traffic, but the ISP says Equinix's service will help reduce peering costs. www.earthlink.com

■ **Genuity** is cutting more jobs after reporting low revenue and high losses for the first quarter. The ISP reported \$281.6 million in revenue for the first quarter compared with \$299.5 million for the first quarter of 2001. The company reported a \$257.5 million loss for the first quarter compared with a loss of \$292.2 million in the first quarter of last year. The company is cutting up to 30% of its staff, or about 1,200 jobs. This latest cut is on top of Genuity's staff reductions last year, which totaled about 2,800. www.genuity.com

Loudcloud touts lower-cost services

■ BY JENNIFER MEARS

SUNNYVALE, CALIF. — Managed infrastructure provider Loudcloud is rolling out services that are designed to give businesses more flexibility by providing entry-level options for about half the cost of previous packages.

Managed Services 3.0, which starts at \$10,000 per month, includes a range of offerings — from infrastructure design and deployment to network and hardware management. Customers can combine products according to their needs. Frank Chen, director of products and services for Loudcloud, says the services are intended for customers who want to start a relationship with Loudcloud without having to commit to high-end services right away.

"It's the enterprise customers who know down the line they want a premium managed service. They want us to manage their applications and lots of complexity, but what they've got is one site or a pilot project that they want to start with," Chen says. "Managed Services 3.0 gives people a way to dip their toes in the pool without jumping in."

In the past, Loudcloud bundled premium support services with all its offerings, meaning Loudcloud basically became the cus-

Bargain shopping

Loudcloud is offering new managed services at a fixed monthly fee, regardless of the length of the contract. Here are examples of typical pricing:

- **Small** (three to four servers with standard support)
\$10,000 per month
- **Medium** (clustered architecture, SAN storage, advanced support)
\$49,000 per month
- **Complex** (clustered architecture, SAN storage, VPN, managed security, disaster recovery, premium support)
\$130,000 per month

tomer's Web operations team. With Managed Services 3.0, customers can decide what they would like to manage and "how many Loudcloud people they want to bring to the party," Chen says.

Customers can choose Loudcloud's Standard Client Services, with which they simply get Loudcloud's 24-7 operations center that acts as a second set of eyes to

help monitor a Web site. Advanced Client Services give customers project-management services and more technical support. Premium services include Loudcloud's dedicated technical and project-management support and use of Loudcloud's Code Deployment System, which automates the process of changing Web site code.

With the economy straining budgets, IT executives are feeling the pinch when it comes to getting funding for outsourcing projects, analysts say. As a result, managed hosting providers such as Loudcloud are responding with lower-cost packages that promise businesses a faster return on investment.

"The key is to start [customers] and then you develop credibility because you're providing services A and B and doing a good job," says Carrie Lewis, an analyst with The Yankee Group. "The hope is that they'll add on to A and B with additional services."

The lower-cost offerings available with Managed Services 3.0 use Loudcloud's Opsware technology to automate the management of Web sites and include service-level agreements, which compensate customers with service credits beginning with the first minute of downtime. The services are available now.

EYE ON THE CARRIERS

Lisa
Pierce

Carrier troubles call for selective diversification

The financial difficulties and leadership changes that had been confined to smaller providers are now being faced by telecom giants such as Qwest and WorldCom. These issues have reached such a level that they now pose a risk to the sta-

bility of most Tier 1 providers.

In response, customers over the next two years should use multiple U.S. Tier 1 facilities-based providers to ensure that any problems arising from these difficulties only marginally affect business-critical

WAN applications and routes.

This is a strategy of selective diversification — not everything requires redundancy. Customers with important toll-free service applications should use more than one provider for the numbers and sites that are critical to their business. The same applies to data service used to support intracompany and Web applications. The corporate data center should have a high level of redundancy, beginning with complete access diversity.

New contracts or renewals should be no longer than two years, and given the state of the telecom industry, I strongly recommend 12- to 18-month terms.

Additionally, organizations should review and strengthen contract language regarding early termination. One should consider the merits of a termination clause that takes effect if either party becomes financially insolvent. Because bankruptcy law varies by state, organizations should consult with attorneys to determine contractual exposure in the event a provider abruptly ceases operations.

The near-term revenue outlook for the entire telecom industry is fairly bleak, and as a result, carrier margins will continue to be squeezed. This could impair their ability to improve and even maintain existing performance levels. Additionally, customers should remain skeptical about promises of service enhancements and new features. The general availability of capabilities promised today could be delayed as long as one year. Evaluate the impact of such a delay on your organization's plans and consider deferring new or expanded commitments to providers.

I've recently seen highly aggressive price proposals from major providers that are experiencing financial trouble. But, as many companies already have experienced with competitive local exchange carriers and smaller long-haul providers, in the event a carrier's financial condition deteriorates, the price of going with the lowest-cost provider is higher than many users can afford.

During the next two years there is no absolutely safe ground — different providers present varying degrees of possible exposure. These days, organizations only can rank providers from the least to the greatest risk.

Customers must weigh the credible risk of poor network performance and deteriorating customer service that typically are associated with providers that experience significant financial problems against the extra cost of a near-term strategy of selective provider diversification.

Finally, it's important to remember this is a global problem, not confined to the U.S. Within or between critical regions or routes, at least two facilities-based Tier 1 global or regional providers should be selectively employed.

Pierce is a research fellow at Giga Information Group. She can be reached at lpierce@gigaeb.com.

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Special Focus

WAN ARCHITECTURES: IP VPNs gain ground.

Braving the move from frame relay to IP VPN

■ BY MICHAEL MARTIN

Waters Corp., a Milford, Mass., company that makes testing products for pharmaceutical, chemical and other companies, has been putting its WAN through some testing.

The subject of the test: whether to stick with a reliable but expensive frame relay network or move to an IP VPN that promises to deliver more bandwidth for less money, but possibly with lower performance and other unpleasant surprises.

As it turns out, Waters has seen enough evidence — including new gear that provides for adequate back-up links — to convince the company to move to an IP VPN, albeit slowly.

Waters has relied on frame relay services from AT&T to connect about 27 international sites to corporate headquarters. Most of the traffic running over the network is generated via SAP and Lotus Notes applications, says Bob Andrews, director of worldwide communications for Waters.

The company began installing IP VPN links almost two years ago to connect several sites that previously had no link to corporate headquarters.

"We weren't brave enough at that time to go out and replace our frame network," Andrews says.

But the IP VPN connections performed well, and when increasing traffic forced Waters to look at adding bandwidth to some frame relay sites, Andrews decided to go with IP VPN connections. There wasn't much of a cost difference between 64K bit/sec frame and 128K bit/sec IP VPN links.

"But as you increased the frame speed to 128K bit/sec and higher, it became significantly more expensive than the VPNs," he adds.

Andrews got quotes from a number of service providers, including AT&T, UUNET, WorldCom and Equant, for dedicated Internet access. However, he found that none could serve all the countries where Waters had offices.

Frame relay hangs in

When service providers began introducing IP VPNs a few years ago, many observers believed IP VPNs would begin taking significant market share away from frame relay services in short order.

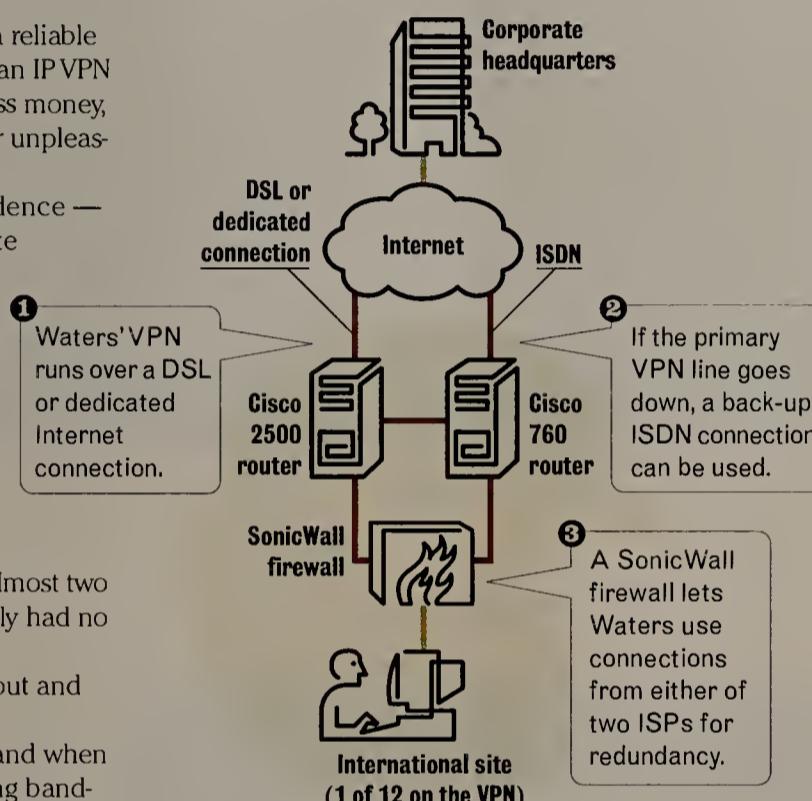
After all, frame relay was a 10-year-old technology that offered point-to-point connections, as opposed to the more flexible multipoint capability of IP. Frame services also cost more than a comparable IP VPN.

Despite its apparent disadvantages, frame relay is still going strong. In one study, research firm Vertical Systems found that only 16% of 563 multisite companies surveyed planned to move from frame relay to IP VPNs.

The reason for frame relay's staying power is that

Bulletproof VPN

Waters has designed its IP VPN with plenty of redundancy built in.



Andrews ended up choosing UUNET dedicated Internet access services in the countries the carrier could serve. In other countries, the company went with local access options.

Waters began replacing some of its frame relay lines late last year.

"One thing we quickly found was that DSL services were more broadly available internationally than we thought," Andrews says.

He wasn't sure how well DSL would perform, especially

it's a stable technology that large businesses are comfortable with, whereas IP VPNs are still a relatively new technology with questions about the quality of service they're capable of supporting, says Steven Taylor, president of consultancy Distributed Networking Associates and publisher/editor in chief of Webtorials.com.

Despite the cost savings associated with IP VPNs vs. frame relay, Taylor says you're not likely to come across as many companies adding IP VPNs to their frame nets as you might expect. "Most people are comfortable enough with IP VPNs that they go all the way, or they're so uncomfortable with them they stick with frame relay," he says.

Another reason companies may be avoiding hybrid frame/IP VPN networks is that managing two technologies is tougher than managing one, Taylor says.

— Michael Martin

in countries such as China and India. But he's been pleasantly surprised so far.

"In fact," Andrews says, "our poorest performing VPN was one we installed in Tokyo with a dedicated Internet access circuit."

Waters is basing its IP VPN on equipment from Cisco and SonicWall, whose gear is replacing that from Nokia. SonicWall got the nod because its equipment better met Waters' need to support back-up links.

"If there are two Internet providers using Dynamic Host Configuration Protocol, [the equipment] can cut over from one to the other right away," Andrews says.

Waters also uses the gear to back up its dedicated Internet access links with ISDN, although Andrews says the ISDN backup hasn't been as automatic as he would like.

Waters already has Cisco 2500 routers installed at its international sites for frame connections and continues to use those devices for the IPVPN links. If the connection drops on the 2500, the router is supposed to fail over automatically to a Cisco 760 router, which supports the ISDN connection. However, Andrews says, the 2500 doesn't always fail over properly to the 760.

"What we found is that the 760s were based on technology from a Cisco acquisition and never worked well with IOS [Cisco's operating system for its routers and switches]," he says.

While the 760s remain in place, Andrews is searching for an even better back-up architecture.

Andrews says it's difficult to calculate how much Waters has saved by moving from frame to IP VPNs, because frame and connectivity prices vary so much from one country to the next.

In Denmark, Waters was paying about \$1,500 per month for a 64K bit/sec frame relay circuit. The company now pays \$253 per month for 512K bit/sec DSL.

In Spain, Waters paid about \$1,200 per month for its 64K bit/sec frame. Now it pays \$1,050 per month for a dedicated Internet access circuit.

Even in areas where the savings aren't substantial, Andrews says, the performance boost has been significant. Waters' lowest IP VPN link is 128K bit/sec, and the IP VPN connections range up to 512K bit/sec.

Waters has yet to experience any significant drawbacks with moving to an IP VPN.

But one minor drawback is that instead of dealing with one provider for all its remote needs, the company now has to deal with several local providers.

"Instead of us calling the carrier from corporate, each individual country calls the ISP that's responsible," Andrews says. "That hasn't been a major problem so far."

Another inconvenience is that with frame relay, Waters could monitor its bandwidth utilization by application. So far, the firm has not yet found a way to do that with the IP VPN, although Andrews says there may be a way for him to break down the traffic with the SonicWall boxes.

Ultimately, Waters plans to switch all its frame connections to IP VPN links. But the company is in no rush to switch.

"We're going to keep monitoring the performance and seek back-up solutions before proceeding too quickly," Andrews says. ■

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Cisco unwraps new ATM switches

MGX 8950 for core, 8830 for entry-level edge intended to fortify line and reverse fortunes.

■ BY JIM DUFFY

SAN JOSE — Cisco this week will roll out a core switch as part of an accelerated ATM program designed to appeal to service providers that are in no hurry to uproot revenue-generating networks for a wholesale changeover to IP.

Cisco will unveil the MGX 8950, a 180G bit/sec top-off to its ATM WAN switch fam-

ily. Cisco also will announce a new entry-level ATM switch and a route processor module for the line.

Cisco hopes the new and enhanced products will breathe life into its multiservice switching fortunes. Cisco fell from the third leading supplier in this market to fourth last year, according to Dell'Oro Group, with 14.2% of the \$4 billion market, compared with 28.8% for Nortel, 27.5% for Lucent and 18.9% for Alcatel.

The MGX 8950 is based on the same mid-plane design as the previous high-end switch, the 45G bit/sec MGX 8850. It features 12 full-height I/O slots that are 10G bit/sec ATM-capable, via four-port OC-48c modules, highly dense channelized OC-3 and OC-12 interfaces, or a single-port OC-192c ATM card currently in trial.

Other vendors, such as Nortel and Lucent, say there is no market for OC-192c

Multimachine

Features of Cisco's new MGX multi-service 8950 ATM core switch:

- 10G bit/sec ATM interfaces.
- 180G switch fabric.
- Based on new Cisco "Europa" ASIC.
- Features four independent switch fabrics called QuadNonStop.
- Runs new RPM-XF gateway for MPLS support, migration.

ATM because of challenges in segmenting and reassembling packets and cells at that speed. Cisco developed a new ASIC, called Europa, to handle that task. The company, however, did not say when a single-port OC-

192c or quad port OC-48c ATM modules would ship for the 8950.

The 8950 also features four 60G bit/sec switch fabrics that run independently yet "listen to" and balance traffic running through the entire switch for what Cisco says is instantaneous recovery in case of failure. This compares to subsecond to multiple-second failover common in ATM switches currently on the market, the company says.

Less than 10 cells passing across switch fabrics are lost in the event of a failure, Cisco says. And though the actual switching capacity of the 8950 is 240G bit/sec with the four fabric cards, one of those four is presumed to be for hot standby.

For investment protection, full-height broadband modules from the MGX 8850 are upgradable to the new switch; half-height narrowband modules are not. Software also is consistent across the MGX and BPX ATM switch line, Cisco says.

The entry-level switch, the 8830, is a 1.2G bit/sec nonblocking switch that features eight I/O slots, Private Network-to-Network Interface (PNNI) routing and modular optical ATM transceivers.

The modular transceivers are analogous to Gigabit Interface Converters found in Gigabit Ethernet switches, which allow service providers to hot-swap transceivers to mix optical interfaces or perform in-service repairs.

The route processor module, called the RPM-XF, features Cisco's Parallel Express Forwarding (PXF) ASIC, which is technology for forwarding millions of IP packets per second.

PXF is designed to enable deployment of new Cisco IOS services for Multi-protocol Label Switching (MPLS), quality of service (QoS), security, policing, traffic shaping and filtering. PXF helps the RPM-XF achieve performance of 2.6 million packet/sec and lets service providers "up sell" frame, ATM and voice customers to new IP-based services, such as voice over IP.

Previously, the MGX 8850 had an RPM that achieved 400,000 packet/sec performance. That RPM featured a Fast Ethernet interface, but the new RPM-XF sports Gigabit Ethernet and packet-over-SONET interfaces to communicate with other switches and routers. RPM-XF is compatible with IOS-based Cisco routers. The PXF ASIC also is in Cisco's 10000, 7600, 7300 and 7200 series.

Luminous to roll out optical-access CPE

E200 to target Ethernet, TDM voice to MTUs, campuses.

■ BY JIM DUFFY

CUPERTINO, CALIF. — Luminous Networks next week will unveil an optical-access device intended to let service providers provision Ethernet data and TDM voice services to companies over an emerging metropolitan-area network technology.

Luminous will roll out the PacketWave E-Series Metro Optical Access Platform, a customer premises-based switch designed to deliver or aggregate 10/100M bit/sec Ethernet, T-1/E-1 voice and transparent LAN services to and from companies attached to Luminous' Resilient Packet Transport (RPT) network. RPT is the company's pre-standard version of Resilient Packet Ring (RPR), an emerging IEEE standard for constructing data-optimized, optical ring networks around metropolitan areas.

RPT goes beyond RPR by providing support for Stratum timing distribution — which synchronizes TDM voice circuits — traffic shaping, congestion-management mechanisms, and Differentiated Services

mapping into Multi-protocol Label Switching for quality of service (QoS) and traffic engineering. And like RPR, RPT utilizes the entire ring topology in both directions, rather than allocating unused protection channels for half the ring bandwidth, as is the case with SONET.

Luminous says adherence with the final IEEE 802.17 RPR standard requires only a software download to PacketWave's programmable logic, not a hardware upgrade. The standard is expected to be completed in the first half of next year, Luminous says.

The first product in the E-Series is the E200. It is a 2U-high (3.5 inches) device for installation in multitenant units, business campuses and as a spur node in remote sites.

The fixed-configuration E200 sports 16 10/100M bit/sec Ethernet ports, four T-1/E-1 interfaces, East and West attachments to a 1G bit/sec RPT counter-rotating ring, an RS-232 console port and an Ethernet management port. It's designed for use with Luminous' PacketWave M-Series and C-

See Luminous, page 42

Short Takes

■ Motorola's Broadband Communications Sector has announced a marketing agreement with Turin Networks to provide metropolitan optical transport and service delivery systems to broadband network operators. Motorola will offer Turin's Traverse Multiservice Transport Platform as the Motorola Multiservice Broadband Transport 5000 (MBT-5000) to its broadband network operator customers. The MBT-5000 platform is a data-optimized, multiservice optical transport system that integrates next-generation SONET/synchronous digital hierarchy with Ethernet switching and dense wavelength division multiplexing capabilities. Motorola and Turin plan to collaborate on additional marketing and development activities. www.turin-networks.com; www.motorola.com

■ Lumentis will introduce at SuperComm 2002 next month 10G bit/sec transponder for dense wavelength division multiplexing systems. The transponder is a single board, single slot unit that carries STM-64/OC-192 or 10G bit/sec Ethernet signals bidirectionally. The board is compliant with the G.709 standard for performance monitoring, forward error correction and management channels. The transponder accepts signals in 1310nm and 1550nm. The output signal is 1310nm. The 10G bit/sec transponder will be available in the third quarter.

See Cisco, page 42

OpenWave, IBM create wireless link

Mobile software company couples with another key hardware vendor.

■ BY GEORGE CHIDI JR.

REDWOOD CITY, CALIF. — IBM and mobile software company OpenWave last week announced a 10-year deal to jointly sell hardware and software to wireless operators.

The alliance links OpenWave's mobile browser software with IBM's e-business platform. The two companies will pool some of their resources to pretest and integrate OpenWave software on IBM equipment for carriers.

"What [service providers] have had to do is integrate things from as many as 50 different vendors," says Nigel Beck, IBM's marketing director for pervasive computing. "They're at the end of their tether. They don't have a lot of money to pile into experimental projects. We're taking the risk out. This is just about the easiest way for a carrier to say they're going to put in some wireless service apps."

While calling it a good partnership, one analyst says the real test of the alliance will be in the markets.

"Anyone can announce a partnership these days," says David Berndt, director of wireless mobile technologies for The Yankee Group.

"It would be good to see six months from now how many of these platforms have been sold and compare that to the previous six months," he adds.

Cisco

continued from page 41

routers.

Cisco is wrapping these new and existing ATM switches under an umbrella called the Advanced ATM Multiservice Portfolio (AAMP). AAMP is intended to offer an extensible, scalable product line with which service providers can "control the pace of their network evolution" from ATM to IP/MPLS, while deploying new services, Cisco says.

Key to AAMP is the Cisco Virtual Switch Architecture (CVSA). CVSA lets the Cisco switches incorporate three control planes using the Multiservice Switching Forum's Virtual Switch Interface: PNNI for ATM, MPLS for IP and Media Gateway Control Protocol for packet voice.

CVSA is designed to let the switches support ATM, IP and voice simultaneously over a single switching plane, letting service providers offer a mix of services from a single platform. CVSA will let service providers migrate their core networks from PNNI to MPLS without requiring new hardware, Cisco says.

Cisco recently announced a similar capability for its routers. Two weeks ago, Cisco enhanced its 7000 series of edge routers with Any Transport over MPLS (AToM). AToM is designed to let public carriers converge multiple disparate data networks onto a single MPLS-based backbone, which Cisco says will save capital and operational costs.

AToM enables the encapsulation of Layer 2 proto-

PROFILE: OPENWAVE	
Location:	Redwood City, Calif.
Founded:	November 2000, from the merger of Phone.com and Software.com
Revenue:	\$83.2 million for the third quarter of 2002, ended March 31.
Management:	Don Listwin, president and CEO; Kevin Kennedy, COO; Alan Black, senior vice president and CFO; John MacFarlane, CTO
Employees:	2,200
Product:	OpenWave Services OS, software for developing and provisioning mobile Internet services, including 3G wireless.
Customers:	AT&T Wireless, Verizon Wireless, Sprint PCS, Nextel, KDDI and BT Genie, among others.
Fast fact:	While at Cisco, Listwin was considered the heir apparent to CEO John Chambers; Kennedy, formerly head of Cisco's service provider business, left Cisco last year after a restructuring pushed him farther down the reporting ranks.

IBM and OpenWave's alliance has been brewing for a while. The two companies began working on an open joint reference architecture for wireless systems last year. The reference architecture permits different types of equipment, software and protocols to function together.

IBM's WebSphere Portal middleware is available integrated with OpenWave's Mobile Access Gateway. WebSphere Portal presents data in a personalized form, while the Mobile Access Gateway helps present information in a suitable form for mobile

devices such as cell phones.

Combined products will be offered globally. Financial details were undisclosed. The companies will commit 100 employees each to the alliance initiative.

OpenWave announced a similar alliance with Sun more than a year ago (see www.nwfusion.com, DocFinder: 9329). Under that agreement, OpenWave said it would license the Java 2 Platform Micro Edition technology from Sun to integrate into its OpenWave Mobile Browser and also will incorporate the industry standard Java 2

Platform Enterprise Edition into its OpenWave Email Web product.

Sun and OpenWave also said they would launch a developer program that supports Sun's Java technology and the Wireless Application Protocol technology. The companies said they would also test Sun Enterprise servers, Sun StorEdge T3 arrays, Sun Cluster 3.0 software and the Solaris 8 Operating Environment for interoperability with OpenWave's infrastructure and application software for next-generation wireless data networks.

A year ago, OpenWave also announced a partnership with Network Appliance to combine OpenWave's software with Network Appliance's storage systems (see www.nwfusion.com, DocFinder: 9330). The goal is to offer service providers systems that provide scalable messaging and storage capabilities at a reduced cost per customer.

The collaboration between OpenWave and Network Appliance is aimed primarily at the unified messaging market, an area that is important to storage companies because of the potentially large storage requirements for elements of unified messaging such as voice mail and fax.

Chidi is a correspondent with the IDG News Service's Boston bureau. The Edge Managing Editor Jim Duffy contributed to this story.

Other vendors say there is no market for OC-192c ATM because of challenges in segmenting and reassembling packets at that speed. Cisco developed a new ASIC, called Europa, to handle it.

cols — such as ATM, frame relay and Ethernet, for example — in MPLS for transport across an MPLS backbone. AToM also offers QoS and traffic-engineering capabilities that let service providers charge for services based on traffic class and maximize network utilization, Cisco says.

The company says AToM complies with the Internet Engineering Task Force's Draft Martini specification for encapsulation and signaling.

Cisco says it works with customers individually to determine whether to steer them to CVSA-enabled ATM switches or AToM-enabled routers for their multiservice backbones.

The MGX 8950 is shipping now. The MGX 8830 and RPM-XF is scheduled to ship this summer. Cisco did not disclose pricing. ■

Luminous

continued from page 41

Series platforms, which are deployed in metropolitan core and metropolitan access RPT rings, respectively, and supports the same software as those platforms.

The E200 supports small form-factor, pluggable optical interfaces for short-reach, intermediate-reach and long-reach applications, and optional redundant AC-power supplies and fans for enhanced reliability. The product's Stratum-level timing feature provides carriers a packet architecture that supports circuit-switched services, Luminous says.

In addition to RPT and eventually support for RPR, the E200 features IEEE 802.1p/Q for Ethernet virtual LAN and QoS, Open Shortest Path First, Version 2 and MPLS.

The PacketWave E-Series can recover from network outages in less than 50 msec, Luminous says. And it can be configured, monitored and managed from the same Luminous Management System that governs the Packet-

Wave M-series and C-series platforms, the company says.

Luminous' customers include Cox Communications and China Unicom.

The E200 is intended as an alternative to linking Ethernet switches to SONET add/drop multiplexers to provision Ethernet services over SONET rings.

The E200 is in lab and field trials with multiple service providers, Luminous officials say. It will be generally available in June and costs less than \$20,000.

Luminous: www.luminous.com



More online!

Stay on top of the latest optical network developments.

DocFinder: 9335

Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

CoS offers prioritization on private nets

■ BY JANEL CRABTREE

As corporations migrate to IP-based products and services, IP-enabled frame relay and ATM provide an easy migration path to Internet-based VPNs. These solutions provide users with the benefits of IP while using the same equipment and connections they already have in place, maximizing their existing infrastructure investment and reducing their total cost of ownership.

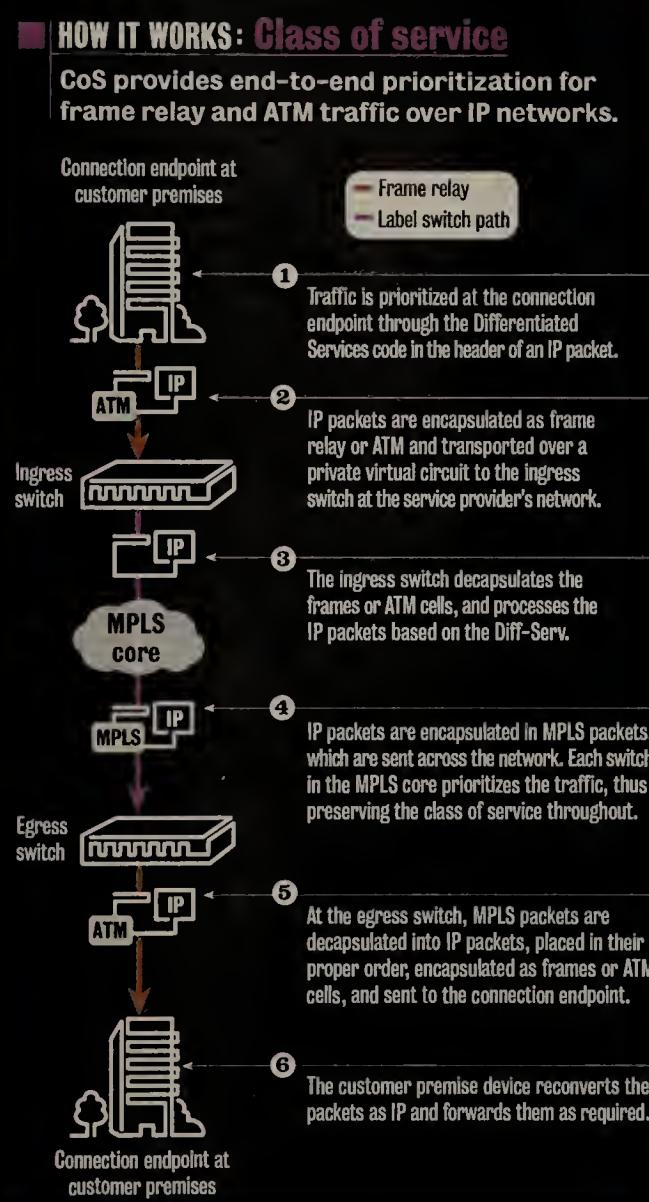
For IP-enabled frame or ATM networks, IP traffic runs over existing infrastructure, combining the security and quality of service (QoS) of frame relay and ATM with the flexibility of IP. Other benefits of private IP-enabled networks include inherent security, significant cost savings, capital expenditure reduction, assurance of business continuity, ease of implementation and access to enhanced services.

IP-enabled frame relay or ATM with class of service (CoS) capabilities — which let a company prioritize its data based on a set of criteria — is ideal for corporations that run high-performance, high-availability applications such as video and multimedia.

CoS enables more predictable traffic delivery of priority data by assigning different delivery status for each application.

A "first class" priority label is assigned to data applications — such as mission-critical data transactions, or video or voice transmissions — which require faster turnaround, while a lower-priority label is assigned to less time-sensitive traffic, such as e-mail and Web surfing.

Traffic is delivered around the world



based on a company's designated priority, and is usually backed by stringent service-level guarantees from the service

provider.

CoS differs from QoS in that QoS refers to a level of service in terms of bandwidth or delivery time, such as bandwidth prioritization or traffic shaping, while CoS refers to traffic delivery priorities. IP-enabled frame relay and ATM let users take advantage of the benefits of QoS and CoS technologies.

With CoS, priorities can be assigned and transported across a network from end to end. The network reach is unique to private networks, because one provider owns the network end to end and can therefore dictate priorities across it. With a public IP network, CoS designations can be stated at the network edge, but will be limited, and do not extend across a public network infrastructure that is unprepared to accept the priorities, because data can travel across several networks.

Here's how CoS works: Based on application requirements, traffic is prioritized at the connection endpoint by setting the Differentiated Services (Diff-Serv) code

in the header of an IP data packet. Letting users manage network traffic, Diff-Serv is the protocol used to prioritize data traffic.

Then IP packets are sent as frame relay or ATM cells, in accordance with the type of network a customer has. Next, these packets are transported to an ingress switch, where the frame or ATM cells are "decapsulated" and incoming IP packets are processed. There, the ingress switch measures the incoming traffic rate against the customer's traffic requirements and, based on the priorities that were assigned to the various traffic types, reassembles the packets in the proper sequence.

Insulated into Multi-protocol Label Switching packets and transported over a network running MPLS at the core, where each switch within the core prioritizes traffic and is sent to the egress switch. At the egress switch, MPLS packets are "decapsulated" into IP packets. On the egress customer interface, IP packets are placed in the correct order and encapsulated as frame or ATM cells and transmitted over a circuit to the customer premises equipment. This equipment reconverts the packets to IP and sends them according to their assigned priority.

CoS is a technology that enables network and business efficiency for any company needing to prioritize data, voice or video on its network for more reliable and greater assurance of higher-quality traffic delivery.

Crabtree is director of global VPN services at WorldCom. She can be reached at janel.crabtree@wcom.com.

Ask Dr. Internet

By Steve Blass

Our school district will be hosting student and staff Web pages using a Compaq ProLiant with dual processors, 1G byte of RAM and 360G bytes of disk space running Windows 2000 Advanced Server. We have three questions: 1) Can we place a header in a frame automatically instead of relying on students or staff coding it? 2) Can we provide a submission process that requires approval of a student's uploaded Web pages before they are made available over the Web? 3) Can we provide an online questionnaire for build-

ing Web pages with tools such as FrontPage for less-than-savvy users?

1) Internet Information Server provides for automatic footers but not headers. To force a top frame on every page implies rewriting URLs to place published pages in a standard frameset. In Apache, we use the rewrite module to reroute requests through a script or program for custom formatting. You can find rewrite implementations for IIS at www.nwfusion.com, DocFinder: 9331,

9332 and 9333. 2) Controlling general availability of uploaded pages with Windows 2000 can be achieved through standard directory permission controls or by using Win 2000's integrated Web DAV publishing capabilities. 3) A questionnaire-based site-building tool that works fairly well is Site Studio, www.nwfusion.com, DocFinder: 9334,

Blass is a network architect at ChangeatWork in Houston. He can be reached at dr.internet@changeatwork.com.

**GEARHEAD
INSIDE THE
NETWORK
MACHINE**
Mark
Gibbs

This week, we return with Spring NetWorld+Interop lag...that curious state created by too many late nights, too much partying and too much Las Vegas. That said, a good time was had by all.

Anyway, being spring, we need to do a little housekeeping: Regarding our recent foray into the nether world of Web services and specifically XML Schema Definitions, reader James Bailey wrote to point out: "I tried using Microsoft's Visual Studio .Net to create XML Schemas and noticed that they use a different definition... than the one stated in your article (www.nwfusion.com, DocFinder: 9339). The format is quite different."

Indeed, the current Microsoft documentation on Microsoft XML Core Services 4.0 (what used to be called the Microsoft XML Parser and we think the renaming is completely pointless) refers to the Feb. 13, 2001, version, whereas the version we cited (DocFinder: 9342) is dated May 2, 2001. Do we really need to say anything


Cool Tools
**Quick takes
on high tech toys**
By Keith Shaw

Linksys launches wireless presentation gateway

The 802.11b wireless LAN standard is a good way for computers to connect to the Internet, but now Linksys is using the standard in a business application. The company has announced its Instant Wireless Presentation Gateway, a device that lets wireless PC users project PowerPoint presentations and other data onto VGA-equipped devices (including projectors, monitors and LCD panels) without having to connect each PC to the projector with wires. Linksys calls the device a "wireless hardware appliance."

The gateway works with VGA displays such as projector screens, TVs, flat screen and PC monitors, and renders the graphics in 256-color, 1,024-by-768-pixel resolution. The device also includes 40-, 64- and 128-bit Wired Equivalent Privacy encryption modes. The WPG-11 works on a Linux operating system and uses an Intersil Prism 2.5 chipset in a MiniPCI slot.

The gateway also lets multiple PCs connect to the gateway which can eliminate the hassle of reconnecting wires when another laptop needs to use the projector. The device will cost \$300 and will be available by the end of the month. Go to www.linksys.com for more details.

Spring odds and ends

about why Microsoft is sticking with the older specification? No?

Anyway, this week we have a small, network-scented potpourri of odds and ends for you. First, we'd like to briefly touch on Agere Systems' Orinoco Point-to-Point Radio Backbone Kit (DocFinder: 9340).

If you were interested in our column on creating longish-distance 802.11b links (1 to 2 miles) by making antennas out of Pringles cans (DocFinder: 9341), but would prefer a packaged and, for that matter, supported and actually legal solution (as far as the Federal Communication Commission is concerned), then this kit is for you.

The kit consists of two tubular Yagi antennas, mounting kits for same, cables and two access points. When assembled and configured, the link acts as a dedicated bridge with routing (which optimizes throughput by not transmitting traffic that isn't relevant to the remote end), offers 128-bit RC4 encryption, SNMP Management Information Base II management, Routing Information Protocol 2, Adaptive Dynamic Polling (which steps the transmission data rate up or down

according to radio frequency conditions) and transparent virtual LAN tagging.

Our friend Michael Fairchild offered to test the system for us and set up one end at his house (which is on a hill in Ventura, Calif.) and the other end at a friend's house on the beach (also in Ventura where, for some reason, SBC Communications can't supply DSL access). There is a clear line of sight end-to-end, but it is a pretty poor one with trees framing the line.

Michael tells us that setup is brain-dead easy, and so far they have a signal, but only a weak one. This is, we understand, probably because of a combination of misalignment — one of the trickier parts of setup — and the trees we mentioned. There's something called the

Fresnel Effect caused by physical object surrounding the line of sight that degrades radio signals.

The two ends are roughly 2 miles apart so if the Fresnel Effect wasn't an issue, they could, according to the product specification, expect a data rate of 11M bit/sec (taking other factors such as rainfall into effect).

In fact, under ideal conditions this data

rate applies up to 3.4 miles. At 4.1 miles, 5.5M bit/sec can be achieved, which drops to 2M bit/sec at 5.0 miles and 1M bit/sec at 5.9 miles.

Pretty cool, and at a price of about \$2,000, affordable. Michael plans to fool around with the alignment this week, so more as it happens.

Our next item is a pop-up killer that works really well. It is called Popup Ad Filter from Meaya Software (www.meaya.com). This has to be about the best pop-up killer we've used and is not only capable of handling every pop-up we could find, but it also doesn't get in your way and can be configured to allow pop-ups on specific sites. It also keeps a log of all the sites it has suppressed pop-ups from, which makes for interesting reading if you are so inclined.

We really like this tool and at \$25 it seems reasonably priced. It gets 10 gear-teeth out of 10!

Our final snippet is to note that we tried the latest version (4.0) of AlohaBob's PC Relocator (www.eisenworld.com), which seems far more robust than the previous version, which didn't work at all well for us. We need to finish beating it up before we can rate it but so far, so cool.

Selected morsels to gearhead@gibbs.com.
**GEARHEAD
RATING**
10
**Meaya
Software**
Ad Filter
**1=awful,
10=insanely
great**
Adobe offers GoLive module for Nokia phones

Adobe has announced a wireless authoring module for Adobe GoLive 6.0 that lets developers create and adapt Web content for Nokia mobile phones. Adobe says the Nokia Developer Suite for MMS, available for free at www.forum.nokia.com, is the first visual authoring application for Multimedia Messaging Service technology. For more information, go to www.adobe.com/golive.

Fujitsu launches all-in-one corporate notebook

Fujitsu PC has launched its new LifeBook A series as an all-in-one desktop replacement notebook aimed at the corporate market.

Starting at \$1,300, the notebooks feature mobile AMD Athlon 4 processors at 1.2 GHz, plus AMD's PowerNow Technology, which is aimed at improving battery life and performance.

The processor also includes 3DNow Technology to enhance multimedia applications.

The notebook has a three-spindle design that can hold a CD-ROM or DVD/CD-RW combination drive, a built-in floppy disk drive and the choice of a 30G- or 40G-byte hard drive. The model comes standard with 128M or 256M bytes of SDRAM, and is upgradable to 1G byte of RAM.

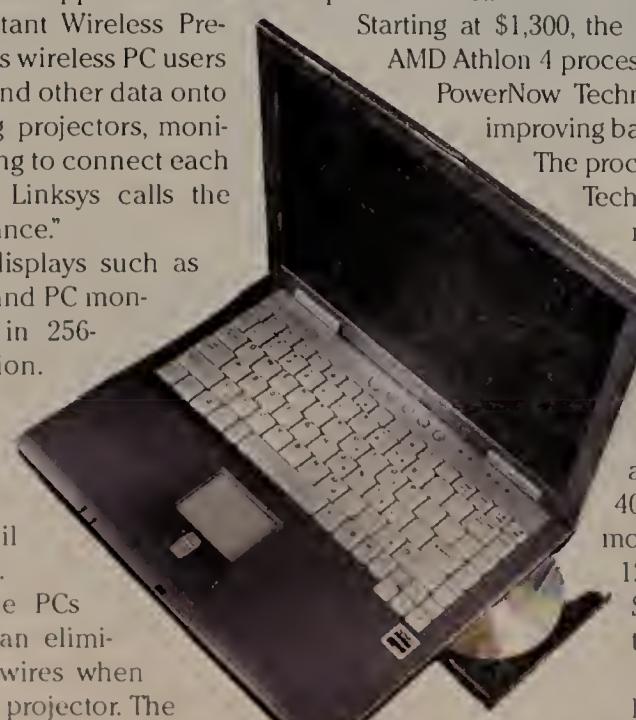
The A series notebooks have two Universal Serial Bus ports and one Type II or Type III PC card slot for expandability. For connec-

tivity, the notebook has integrated 802.11b wireless options, in addition to the regular built-in modem and 10/100 Ethernet port. Go to www.fujitsupc.com for more information.

An easier way to document your cables

Net Optics has released new iMark SC Clips, which feature a small notecard pocket integrated within the clip. With the notecards, network managers can write down cable and device connections, deployment history or other relevant information for better organization or troubleshooting.

The iMark SC Clips are available in different colors, the housing clips easily onto any SC Connectors, and can be ordered with any custom fiber cable available from Net Optics. Pricing varies with cable distance, but a 9.9-foot SC-to-SC cable with the clips costs \$32. For more information, go to www.netoptics.com/sc.html.

**The iMark SC Clips
help keep your
cables straight.**

Technology in the LifeBook could enhance multimedia applications.
Get your Cool Tools fix every day

Network World has launched "Cool Tools: Daily Dose" on our NW Fusion Web site. The Daily Dose will give you reports of new and exciting devices for your professional and personal life. To access the site, go to www.nwfusion.com. DocFinder: 9240.

Shaw can be reached at kshaw@nww.com.

Someday your business continuity solution will be called on to save your company.

(But what's it doing this afternoon?)



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EDITORIAL

John Dix

Convergence alive and well at N+1

NetWorld+Interop 2002 Las Vegas was smaller than usual but otherwise vibrant. The exhibit floors seemed about two-thirds full and there were fewer bodies making the rounds, but vendors seemed to be happy with the quality of the attendees.

Rick Beattie, vice president of business development at Bodacion Technologies, a maker of hackerproof Web servers (see www.bodacion.com for more on that claim), put it this way: "People are taking notes and talking budgets instead of collecting tchotchkes and doing reverse selling ... coming to my booth to try to sell me stuff."

Predictably, the hot subjects were security, wireless and convergence. The latter is perhaps the most fundamentally important, and vendors at the show were there to report progress.

James Richardson, chief marketing officer with Cisco, says simply: "It's happening. We're landing huge accounts." And Alcatel, the \$22 billion French company that has amassed a war chest of technologies to do battle with Cisco, is betting the company on it. Olivier Houssin, president of Alcatel's e-Business Group, says that over the past three years, Alcatel has remade itself into a full supplier of convergence products.

What problems does voice/data convergence solve? Mitel CEO Don Smith says savings can be found in IP trunking, convergence of physical plant-like wiring, integrated management and topology savings — potentially obviating the need for switch functionality at each location.

But most importantly, voice over IP increases the pace of innovation. "We're doing things today that would have been impossible in the TDM environment because of the complexity it would have added to the switch," Smith says. Case in point: a Mitel phone on display in the company's booth that mates with a PDA.

This \$350 to \$400 phone, which is expected to be available in November, has a built-in cradle for a Compaq iPaq (adapters for Palm's are in the works). Mitel puts your identity in the iPaq, so when you plug it into a phone the network recognizes that phone as your extension and all of your normal services follow you.

Once connected, you can dial from the contacts list on your iPaq and even transfer calls using that list. It also provides a visual look into your voice mail, showing who called and when.

Try to do all of this in a TDM world. As Smith says, "Convergence is inevitable. All that's left is arguing about when."

— John Dix
Editor in chief
jdx@nww.com

opinions!

Just say no

Regarding "IT malpractice" (www.nwfusion.com, DocFinder: 9323): Consulting firms need to say no to projects that are poorly conceived. Some projects are really not well thought out and should not be undertaken.

It is all right to say no and is probably better for your reputation in the long run.

Bill Pyne
Providence, R.I.

Bot thoughts

In his Backspin column "Perfection by bots" (www.nwfusion.com, DocFinder: 9324), Mark Gibbs misses an important point: Labor-saving devices are not meant to give you more free time. They never were. Rather, they are meant to let you spend a greater percentage of your time on higher-level tasks (that is, non-labor-intensive).

Every time I automate one of my employees' menial tasks, such as data entry, I replace that task with a higher-level one, such as installing hardware, troubleshooting software glitches or data mining, rather than giving them an extra break or longer lunch.

Thus, the more labor I take away from them, the harder their jobs become. Interestingly, this is just the way they want it — they find challenge is much more rewarding than mindless "labor."

Robert Clymer
Computer room manager
McKesson Corp.
Los Angeles

Mark Gibbs asks if having bots will give him more free time. Actually, he'll have less free time.

E-mail letters to jdx@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

He'll be slaving away to pay for the bots themselves, and for repair bots to fix and upgrade them. He'll have to pay Microsoft for another two-week Winbot license (the only operating system bots will recognize, with a license that forces you to renew every two weeks or the bots go psycho).

He'll have to pay for insurance to cover him when his garden bot prunes the neighbor's garden bot when it strays too close to the fence.

He'll have to pay a security bot service to keep a close eye on his house to ensure thief bots owned by criminals don't attack his house, and pay another security company to ensure no one hacks his bots and turns them into serial-killer bots or thief bots.

Of course his greatest expense will be for regular holidays to Amish farms for two weeks of no-stress, bot-free living.

Andrew Seldon
Editor
Yukom Medien
Munich, Germany

Bye bye, directories

Regarding the reader who asked Dr. Internet how to get rid of directories created by hackers (www.nwfusion.com, DocFinder: 9326): I have run into this problem many times and have found that you can delete the directories if you log on as administrator and transfer ownership of the directory and files to the administrator account.

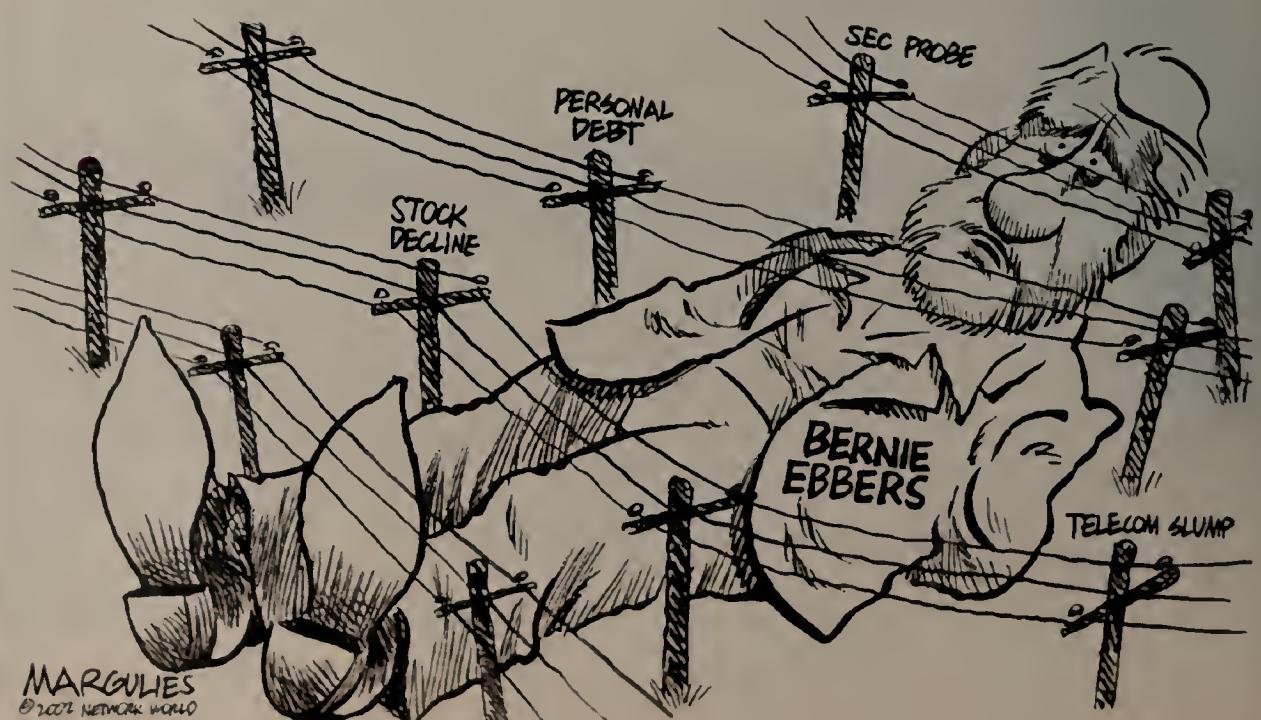
You should be able to delete the problematic directories and files without a problem. You might have to stop Internet Information Server before you do this, but it should work.

Jeremy Donaldson
Network administrator
Mississippi State University
Starkville, Miss.



More online!

www.nwfusion.com Find out what readers are saying about these and other topics. **DocFinder: 9321**



USER VIEW
Chuck Yoke



A little more than two years ago, I wrote my first column for *Network World*. The topic was IPv6 and my opinion was that while IPv6 may have some use, I was going to stick with IPv4 "for now." Well, two years later, I'm still sticking with IPv4.

While IPv6 provides features that may be valuable to a carrier-class network provider, the ubiquitous IPv4 still provides me with all the network capabilities and features I need to design, implement and manage global corporate networks.

The one item that initially interested me about IPv6 — the extended address space — essentially has little or no value to me anymore. By using the private 10.0.0.0 address space and network address translation (NAT), I have more than enough IP addresses. And if I run out of addresses, I can always use NAT with 5.0.0.0, 7.0.0.0 or one of the other Internet Assigned Numbers Authority reserved addresses. While they are technically not designated for private address use, almost all ISPs have applied the appropriate filters in their infrastructures to ensure these addresses do not get propagated to the Internet. Even if I had a registered IPv6 (or even IPv4) address space, very few ISPs would let me use it to access the Internet natively. To reduce the load on their Border Gateway Protocol routing tables, most ISPs require I use addresses from their block of registered addresses.

As for security, even though IPv6 offers enhanced native security features such as authentication headers and encapsulating security pay-

Two years later, still sticking with IPv4

loads, I can use optional IP Security extensions to bring these features to my IPv4 infrastructure. With today's business emphasis on security and return on investment, few network security departments would be willing to throw out their trusted IPv4 investments and implement a new infrastructure. Their IPv4-based firewalls — combined with Triple-DES encryption, Remote Authentication Dial-In User Service and Challenge Handshake Authentication Protocol — have been designed and configured to provide the required level of network security at low cost. IPv6 brings nothing to the corporate security table that can't be done in a correctly configured IPv4 environment.

While IPv6 provides native quality of service via the flow label header field that can identify and route traffic by flows, IPv4-based options such as traffic shaping, Differentiated Services and Multi-protocol Label Switching meet the majority of corporate QoS needs.

A crucial consideration of any technology is support costs. I know of very few people who have the necessary training and experience to design a global IPv6 network. On the other hand, there are many workforce professionals trained and experienced in IPv4.

While IPv6 provides a very elegant technical solution, the tried-and-true IPv4 provides corporations with all the network functionality they need at a lower cost. And in the business world, that makes IPv4 "the winner and still champion."

Yoke is a business solutions engineer for a corporate network in Denver. He can be reached at ckyoke@yahoo.com.

Even though IPv6 offers enhanced native security features . . . I can use optional IP Security extensions to bring these features to my IPv4 infrastructure.

ON SECURITY



Winn Schwartau

Forget the bad guys taking down your systems — what about the good guys?

Recently, I was in the process of making some travel reservations. After booking my airfare and rental car, I called the Hilton's toll-free number.

Unfortunately because of technical difficulties, a reservation was not to be had. "Our systems have been down for two days," the operator explained.

I tittered and said facetiously, "Oh, sounds like the engineers were trying to fix things that worked perfectly well."

"That's exactly right, sir," she affirmed.

"You're kidding, right? Two days?" I asked, incredulous.

"And our call center is down, too. They were upgrading that and the reservation system at the same time last weekend." (I was calling late on a Tuesday afternoon.)

"So how are you taking reservations?"

"We're not."

"Uh, OK. I guess that means you guys are losing an absolute fortune." I meant it. Hilton. Thousands of properties worldwide. Hundreds of thousands of hotel rooms and no way to make reservations. Add it up. Instant-gratification business travelers and vacationers also know how to dial Marriott and Sheraton and Hyatt.

Lessons learned from this experience:

- Two major system upgrades in one weekend is the penultimate in stupidity, second only to upgrading three or more in one weekend. My engineering experience taught me early on to make step-by-step changes, test and then move forward. Baby steps, not giant steps. Software engineers recommend the same thing when tweaking operating systems. Make the first change, save, reboot, test. Make the second change, save, reboot, test. Simple.

- Upgrades aren't all they're cracked up to be. Really evaluate the need for that latest and greatest upgrade. Will it improve business enough to justify the cost, the headache and — as Hilton undoubtedly learned — the downtime and loss of business?

When an upgrade goes awry

- There is no excuse for what Hilton experienced. I've seen plenty of organizations that have a complete duplicate production system to avoid exactly the kind of situation Hilton faced. Sure, it costs money, but what is worse: Spending a bit on a redundant production facility or losing business and customer confidence?

- Test the bugger. I mean, really test it. We all bemoan the fact that much of the software being foisted on Corporate America is really Beta .92 or some such prerelease version. With in-house and/or custom applications, especially those that are clearly mission-critical, there is no excuse for this kind of systemic failure. Test it. Test it again. Then test it some more.

- Think failsafe. Keep the backup. In many large companies, when new software is deployed, there are glitches. Part of the new system planning should include an immediate fallback to an earlier working version. How long can Hilton survive this kind of downtime before the pain becomes unbearable? Only they know that answer, but I urge CIOs to make better contingency plans.

- Make the consultants and vendors pay. I don't know if Hilton's glitches were vendor- or consultant-driven, or if there is an internal development staff, but enough organizations rely on outside staff and consultants to make the point. Contracts should include contingencies for failures, have a well-conceived procedure for assessing responsibility and appropriate means of compensation to the injured party. Of course, the client needs to take appropriate levels of responsibility, such as outlined above, to minimize risk.

All large development projects are potentially dangerous. First deployment is a nail-biting experience. But enough projects do go right the first time out, which demonstrates that two days of downtime is entirely unacceptable. Sometimes our best intentions are our worst enemy.

By the way, I had to book Marriott.

Upgrades aren't all they're cracked up to be. Really evaluate the need for that latest and greatest upgrade.

Schwartzau is president of Interpact, a security awareness consulting firm, and author of several books, including the recent Pearl Harbor Dot Com. He can be reached at winns@gte.net.

Fighting back against spam

There's no silver bullet, but a coordinated strategy that includes usage policies, anti-spam tools and services can greatly reduce unwanted e-mails clogging your network.

■ BY SUZANNE GASPAR

In late January, an avalanche of 15,000 spam e-mails took down a midlevel Simple Mail Transfer Protocol gateway server at a major credit information company, bringing e-mail to a grinding halt for 10,000 end users in 35 countries.

Scott DeGulio, global collaborative and messaging services manager for the New Jersey company, says the spammers made an educated guess at a block of e-mail addresses and sent spam to those suspected users. If the user didn't exist, DeGulio's mail system generated a nondelivery report that went back to the spammer. The spammer's return address was bogus, so the system generated another block of nondelivery reports back to DeGulio's servers, in a vicious cycle. "It's a load issue, a bulge coming in and a bulge going out. It's like watching a swarm of bees," he says.

In response, DeGulio and two colleagues sifted through mail queues for more than two hours, finally locating a subject line repeated in 10,000 emails. He configured a server rule to delete the spam, but it took the affected server three hours to recover. "We had pizza and watched the queues go down," he says.

Unfortunately for IT departments across the country, spam, or unsolicited bulk e-mail, is becoming more than just a nuisance. It's costing big bucks by jamming the flow of e-mail traffic,

disrupting business, stealing bandwidth, hogging servers and storage devices, and taking up staff time. The Radicati Group estimates that spam comprises nearly one in three corporate messages exchanged this year, and that is expected to climb to 39% by 2006.

There's no federal law or single tool to stop spam from crashing corporate servers. Spammers are a moving target, hiding behind spoofed e-mail headers, switched IP addresses and hijacked open relays.

Fighting back against spam

Companies can fight back with a combination of usage policy, firewalls and SMTP gateway rules and antivirus filters. Applying anti-spam software or services adds another protective layer, but these filters require constant updates. And even if you put layers of filters everywhere from the gateway

to the mail server to the desktop, there's still the thorny issue of striking a balance between setting the filters so loosely that spam leaks in or so tightly that legitimate e-mail is blocked.

IDC analyst Mark Levitt recommends blocking the most offensive and common spam at the server, letting the rest through and training end users to manage it. But everyone agrees that there's no easy answer.

On an average day, 100,000 incoming spam messages hit the two Unix mail servers at California Polytechnic State University in San Luis Obispo, bogging down the system and leading to complaints from end users about messages being delayed.

But Scott Busby, the university's application administrator, doesn't have many weapons in his ongoing battle against spammers. The free speech culture at the college doesn't allow spam filters on gateways or mail servers. The best Busby can do is to apply server rules that buffer spam attacks during peak periods so that the servers can process the surges during off-peak hours.

He tries to train users to set up client desktop filters, but they are difficult to use. "There's no good way to filter for spam and not grab a percentage of good mail," he says.

"It's a load issue, a bulge coming in and a bulge going out. It's like watching a swarm of bees."

Scott DeGulio
Global collaborative and messaging services manager for a major credit information company



Spam has caused countless headaches for Scott DeGulio, global collaborative and messaging services manager for a major credit information company.

How do spammers get your e-mail address?

Spammers harvest e-mail addresses from:

- Chat rooms, discussion forums, Web sites, portals.
- AOL user profile lists.
- Corporate Web site e-mail directories.
- Internet white/yellow pages.
- CD-ROM list purchases.
- Trading and selling.
- Pinging mail list servers to request mailing lists.
- Extracting addresses from Web browsers via anonymous FTP or Java script.
- Using an Ident daemon or Internet Relay Chat client.
- Chain letters hoaxes that require a reply to get a free gift.
- Headers that browsers send to the Web server visited.
- Finger daemons that query for logon names of specific users on that host.
- Guessing addresses, then monitoring for returned mail and errors.
- Using software that automatically generates e-mail addresses (John@xyz.com, johna@xyz.com, johnb@xyz.com).
- Modifying mail headers to request a delivery confirmation from the mail system or client.
- Removing protective phrases added to e-mail addresses to avoid harvesting.

Use what you've got

For most companies, the first step in fighting spam is configuring existing technology. Insurance agency Allstate is using a combination of education and usage-policy, along with server configurations for blocking IP addresses and performing reverse DNS look-ups, a verification process that lets the server reject mail if the host's name doesn't match its IP address.

But, Ken Davis, director of information security at Allstate in Northbrook, Ill., says a gradual increase in spam over the past year has him evaluating spam-filter technology.

"No matter if we get software in here, there's not going to be one silver bullet," Davis says. It takes technology and policy to prohibit users from signing up for e-mail newsletters with nonbusiness entities and the like.

Combating spam is like the war on drugs — you can't just attack the problem on the supply side, you need to attack it with good employee-use policy, says Dana Gardner, research director at Aberdeen Group. Part of that policy would also include a prohibition against employees sending out porn, because the recipient could file a claim of sexual harassment.

Add antispam tools and policies

Antispam tools, similar to virus software, can identify spam and create business rules based on those patterns. Products include Elron Software

IM Message Inspector, TrendMicro eManager and Clearswift MIMEsweeper.

Gardner recommends going beyond deploying specific tools and creating an overall security system that applies policies about what is allowed to come in and go out.

Penn National Insurance is using Clearswift MIMEsweeper to slap its policy on incoming and outgoing e-mail. "While we hate to go that route, we'll block a domain if we have to," says Tom Miele, information security manager for the Harrisburg, Pa., firm. MIMEsweeper eradicates spam based on the user-defined policy that is translated into filter rules that block spam.

The Hartford Financial Services group in Connecticut is using antispam software in a layered filter approach, with Clearswift MIMEsweeper on its SMTP gateway, TrendMicro eManager on the mailbox servers and client filters on desktops, along with user policy. Some spam never reaches Hartford's SMTP system because it gets killed at the Internet gateway through reverse DNS look-ups and IP blocking. The mail that reaches the SMTP gateway is sifted through MIMEsweeper's lexicon analysis, where spam based on specified criteria is automatically deleted.

It's always a concern that legitimate mail gets killed in this process, says C.J. Young, enterprise messaging group manager. Hartford limits its use of MIMEsweeper's canned filter phrases because of this reason, Young says. Instead, two IT staffers

maintain an customized filter file to block spam based on feedback from Hartford's mailbox server.

At the mailbox server, TrendMicro eManager acts much like virus scanner, reading filter file to identify and delete spam. "It's better than quarantine suspect spam," he says.

But Hartford's filter, which has been in place since 1999, is no match for the growing volume and sophistication of spam, and IT is getting more help desk complaints about spam reach.

Young says he wants users to apply client filters and also is evaluating a gateway to apply at the gateway. "Our goal is to keep spam off our network," Young says.

Seek help from vendors

Even with a strict policy managing spam in-house takes a toll on IT, which has to determine what is legitimate mail. Many spammer domains are well known and easily blocked. But, identifying spam through a keyword search or through blocking constantly changing spammer IP addresses adds lots of administrative overhead.

With 100 local mail servers across the globe and only six staff members, DeGolio says it would be a huge undertaking to constantly update those filters.

IDC's Levitt recommends that IT departments partner with an anti-spam product vendor or service provider rather than try to program rules and algorithms on their own. "You can't build your own spam engine. You don't have time," he says.

Aetna knows this all too well, with IT writing scripts, digging legitimate messages out of quarantined mail and visiting security bulletin boards to find common attacks and IP addresses to block, says Perry Gesell, information security architecture manager for the Hartford, Conn., insurance firm.

He is starting to look at products and services for separating out legitimate e-mail because administering the filter eats up his time. "I need a service to eliminate this stuff, stop it at the firewall. It's too costly to do in-house, and not the core competency at Aetna," he says.

Providers such as Brightmail, Big Fish, MessageLabs and Postini offer services to filter spam. Brightmail pays full-time staff to inspect spam and write updated filters for the more than 3 million spams that were collected and processed through its Probe Network during February this year. According to Brightmail, the Probe Network is a collection of e-mail accounts with a statistical reach of 100 million mailboxes.

With that level of spam exposure, Brightmail develops the kind of expertise that one enterprise IT department can't match.

Sovereign Bank is benefiting from Big Fish spam filtering services. The Boston bank is having its mail scoured for spam and viruses before it hits the inbox, says Brad Rightmyer, network engineering and design manager. Big Fish services also cover e-mail storage and load balancing. "I don't think we need one-and-a-half persons to manage an in-house system for a couple of the services." Big Fish services cost \$150 to \$6,000 per month, depending on volume, usage and level of service.

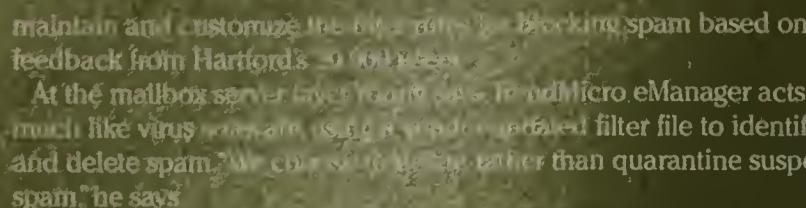
The ultimate solution: Private e-mail networks

The lack of a private e-mail approach has some experts and users saying private networks, using tokens for strong authentication, are required.

Cal Poly's Busby has considered going forward in his e-mail client that would require users to log in to authenticate via a token or key word. "The hard part is that someone would always have to e-mail me twice, once to get the token and then to send their message," he says.

"Right now we're doing our business on the public street, and companies are realizing that the cost of managing spam is huge," says Jacques Hale, director of research for the Butler Group. The conceptual problem with spam that software cannot solve is determining what is spam and what is not, he says. "Filtering technologies are and probably will be a hit-or-miss deal."

Supporting a private business network where security costs are shared by all users is an extreme view, but ultimately might be necessary. ■



Antispam tactics

Properly configured firewalls and servers can provide an effective buffer against spam.

Use the Check Point Software firewall Content Vectoring Protocol (CVP) and Open Platform for Security framework to enforce security policy at the firewall and perform anti-spam filtering.

Scanning at the firewall inspects packets and identifies the SMTP sessions. SMTP traffic is segregated and routed to a separate third-party CVP server, such as Brightmail or TrendMicro eManager, where the data is scoured and policy is applied that may quarantine or delete e-mail or route back clean messages on to users.

Use the settings on Novell GroupWise Internet agent to:

- Enable mailbomb protection and set a threshold for an acceptable security level.
- Prevent future mailbombs from the mailbomb sender by identifying the sender's IP address in the Internet Agent's Operation screen, then restricting access to your system by that IP address with Access Control settings.

Other configuration tactics:

- Configure firewall rules and native Sendmail filters on Unix to examine and block specific IP addresses.
- Apply rules for pattern matching to block spoofed source addresses, specific text strings.
- Set a threshold to quarantine mail based on the number of messages and message recipients.
- Segregate inbound and outbound mail traffic by deploying two servers, one external to the firewall for accepting mail, the other inside the firewall dedicated to sending mail.
- Place the SMTP server inside the firewall.
- Apply primary filter measures at the gateway.
- Disable mail relay and validate all requests for third-party relay.
- Configure firewalls and SMTP gateways to perform reverse DNS look-ups.
- Configure mail servers not to divulge e-mail addresses.
- Configure thresholds to delay mail runs of 500-plus recipients from one sender for off-hour processing.
- Configure servers to reject mail from senders at illegitimate domains.
- Do extensive logging on SMTP gateway for reporting and review.

Filtering tips:

- Run policy-driven spam, virus and content filtering on one server to scour the mail in one process.
- Use content-filtering software to enforce e-mail use policy on inbound and outgoing mail.
- Apply filters in combination on firewalls, SMTP gateway, local mailbox servers and client desktops.
- Create filters using sender, subject or text string to delete/quarantine replicated mail sends from one sender.
- Configure spam-filtering options on antivirus software.
- Filter e-mail headers for improper usage such as lack of client Outlook or Eudora variables.
- Filter for series of messages addressed to invalid addresses, multiple combinations of names.
- Use key word search and IP address blocking (blacklists) in combination.
- Apply white lists (lists of trusted recipients).
- Block e-mail based on flesh tone detection.
- Filter phrases such as "lose weight," "make money fast," "credit card numbers," and multiple exclamation points.

Useful tips from the field:

- Don't include the SMTP address in the browser configuration when you set up the PC.
- Disable Microsoft Outlook preview pane.
- Ban e-mail with HTML and Java scripts.
- Select an ISP provider with spam-filtering options.
- Evaluate associated costs for technology and staffing to filter in-house vs. a spam-filtering service.
- Report spammers to appropriate administrators of the system where the mail originated.
- Report fraud e-mail to the Federal Trade Commission, www.ftc.gov.
- Avoid publishing e-mail addresses on your Web site.
- Post a request for contact information form or use a Java script to generate e-mail addresses dynamically.
- Use complex e-mail addresses with mixed characters to avoid harvesting and autogenerated addressing.
- Consider using a token-based e-mail system, Pretty Good Privacy or other encryption technologies to authenticate senders.



- Types of spam (unsolicited commercial e-mail, chain letters, hoaxes, urban legends, fraud schemes).
- The use of desktop filters.
- Purging mail to maximize desktop storage.
- Using e-mail address for essential, business-use only.
- Using two e-mail addresses, one for business e-mail, one for public usage.
- How spammers acquire addresses.
- Deceptive unsubscribe and opt-out links.
- Acceptable e-mail use policy.

IT needs to educate users about various aspects of spam, including:

■ Is your ISP measuring up? Find out with our Top ISP Report, a joint venture between *Network World* and eTesting Labs' Internet BenchMark service (www.etestinglabs.com). The data here is for March 2002; each month you can go online at Network World Fusion for the latest data.

The chart at right shows you the top dial-up ISPs in the market and how they performed in eight metrics, as determined by eTesting Labs' Internet BenchMark data. We analyzed 20 ISPs. If your ISP isn't listed among the top performers, ask it why it's not performing as well as their competitors.

Top ISPs profile, March 2002

Network World analysis

National retail

AT&T WorldNet • Consistently above average in many categories, although not as dominant as it has been in previous months.

Regional retail

BellSouth • Very consistent across all categories; being tops in four categories gives it the slight edge over Verizon-East.

Business-to-business

McLeodUSA • Slightly edges out AT&T (BIS) with a strong performance in three categories, and above average in eight out of nine categories tested.

How we did it

Our data comes from eTesting Labs and its Internet BenchMark division. *Network World* takes the data and applies statistical analysis to rate the results. It ranks each ISP compared with other ISPs within the same market classification (national, regional, business-to-business ISP). Based on this work the top ISPs are rated first, followed by the next best ISPs that fall into the same classification.

The Top ISP Report

How is your dial-up ISP performing?

March 2002

	National ISPs	Regional ISPs	B2B ISPs
Initial modem speed	Broadwing AT&T Prodigy Average for market: 49.3K bit/sec	BellSouth Verizon-East Qwest Average for market: 49.31K bit/sec	AT&T (BIS) McLeodUSA Genuity Average for market: 49.2K bit/sec
Average time to log on	AT&T Prodigy EarthLink Average for market: 29.72 seconds	BellSouth SBC Southwestern Bell SBC Ameritech Average for market: 30.98 seconds	McLeodUSA AT&T (BIS) Average for market: 28.86 seconds
Average download time	AOL CompuServe Average for market: 26.88 seconds	SBC PacBell BellSouth Verizon-East Average for market: 29.17 seconds	McLeodUSA AT&T (BIS) Average for market: 28.85 seconds
Average DNS lookup	AT&T Prodigy EarthLink Average for market: 379.13 msec	SBC Ameritech BellSouth Verizon-East Average for market: 277.24 msec	AT&T (BIS) McLeodUSA WorldCom Average for market: 339.51 msec
Average Web throughput	Prodigy Broadwing AT&T Average for market: 4.99 byte/sec	SBC PacBell BellSouth SBC Ameritech/ Verizon-East (tie) Average for market: 5.26 byte/sec	McLeodUSA Average for market: 5.34 byte/sec
Evening-hour call failure rate	MSN Verizon-West AT&T Average for market: 5.2%	BellSouth/Verizon-East (tie) SBC Ameritech/ SBC PacBell (tie) Average for market: 1.8%	AT&T (BIS) WorldCom McLeod USA/XO (tie) Average for market: 2.6%
Business-hour call failure rate	MSN EarthLink/ AT&T (tie) Average for market: 4.8%	SBC Southwestern Bell Qwest SBC Ameritech Average for market: 1.1%	WorldCom AT&T (BIS) McLeodUSA Average for market: 3.0%
Average total Web fail/timeout	AOL EarthLink AT&T/Broadwing (tie) Average for market: 0.5%	BellSouth SBC Ameritech/ SBC PacBell (tie) Average for market: 0.8%	Genuity AT&T (BIS)/ WorldCom (tie) Average for market: 0.6%

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Protecting your PDA assets

BY PAUL FERRILL

PDAs are an enigma for most corporate IT departments. As their use becomes more prevalent, it will require a rethinking of

many corporate policies covering everything from the handling of personal information to writing down passwords. The stakes get even higher when you consider what the consequences might be of a lost

or stolen executive PDA.

Trust Digital's PDASecure (www.trustdigital.com) is one of several products that offers a solution to the PDA security problem (others include PDA Defense and PDAlok). PDASecure uses encryption algorithms and password protection to protect all the vulnerabilities associated with a PDA. PDASecure costs around \$40 per pro-

tected PDA. A version with centralized management costs about \$80 per protected PDA plus \$5,000 for the server piece.

We tested PDASecure on a Compaq iPaq 3835 PDA running Pocket PC 2002. We installed the software on a PC and then connected through the PDA's docking cradle. Installation time was a few minutes.

We were concerned about the requirement to enter a password every time the PDA is turned on. While this can be annoying if you're using the PDA to take notes in a meeting and you frequently turn it on and off to save the battery, we also realize it can be just the ticket for a PDA used in a high-security environment.

Performance of the encryption algo-

**NetworkWorld
Review**

rithms depends on the level of protection you choose. PDASecure supports six algorithms with up to 128-bit encryption. The most secure level could take up to 90 seconds to decrypt an address book. That could cause most users to shy away from using strong encryption. The PDASecure documentation gives a strong warning that if you forget your password, there is no way to recover your encrypted information.

At the administrator level PDASecure makes it possible to enable or disable ActiveSync and beaming. After turning this feature on, a password is required to sync the device — and beaming is disabled. You also can lock the device after a specified number of failed password attempts and erase the device if the number of attempts is exceeded.

The enterprise version includes a policy editor that lets you establish a networkwide policy for all PDAs. The Policy Editor supports user groups, which lets you set policies for groups based on their needs. Specific policies include setting the password length, time of day usage and application lockouts. You also can enable the logging of actions such as application usage, invalid logons, application deletion and number of beams sent or received.

From our perspective, the Pocket PC version was more trouble than it was worth. Having to type in a password every time the device is turned on is enough of a disincentive to avoid using it. According to Trust Digital, future Pocket PC versions will include the same level of features as the Palm currently has. However, we realize that other people have security requirements that make what we see as an annoyance a major plus for them.

Ferrill is a freelance writer in Lancaster, Calif. He can be reached at paul.ferrill@verizon.net.

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Prepare for emergency

IT executives share their tips for making a graceful recovery from disaster.

■ BY LINDA LEUNG

Verizon did an admirable job restoring telecom service after the Sept. 11 attacks, but the job could have been easier if back-up data for the West Street facility that serves the New York Stock Exchange was stored off-site.

"That was the single point of failure," says Dennis Elwell, executive director of business recovery and continuity services at Verizon Enterprise Solutions Group. Although Verizon's business-recovery plan let it restore 90% of the affected telecom service areas in less than a month, there are lessons to be learned from the experience.

The events of Sept. 11 have raised awareness about the need for disaster-recovery plans — not just to bounce back from outages caused by massive natural or man-made disasters, but also from day-to-day events such as software corruption and human errors. What follows is advice from IT executives about who to involve in creating a disaster-recovery plan and what elements it should include.

The Michigan Department of Environmental Quality (DEQ) developed its disaster-recovery plan during a nine-month period in 2000. Mike Hatfield, DEQ's security officer, headed up the project with help from an outside consultant.

DEQ employs 1,450 people, 63 of whom work in IT. The majority of its systems are kept at a data center in downtown Lansing, and each of the organization's 18 sites has one or more servers.

The first stage of creating the disaster-recovery plan was risk-assessment. Hatfield surveyed DEQ's 10 departments to assign priorities for their systems. Most said they needed to have their systems restored within 72 hours, one said 12 hours, and several requested a 24-hour recovery period. Hatfield then was able to design appropriate network recovery procedures.

Chad Zemer, operations manager of DEQ's Office of Automation Coordination, who provided all the telecom, network and server information included in the plan, says, "Make sure the business

processes are at the forefront of a [disaster-recovery] plan."

Jim Metzler, vice president of consultancy Ashton Metzler & Associates, suggests giving businesses options and prices for different levels of business continuity. Departments can decide how much risk they're willing to take and pay accordingly. Would organizations be willing to spend millions for a hot-standby site that's ready to take over for the data center when disaster strikes, for example?

DEQ opted for an off-site recovery service supplied by LiveVault. In December 2001, DEQ began backing up its critical file data, databases, e-mail and Internet/intranet software to LiveVault's servers, which currently hold 400G bytes of DEQ's data. Replication to LiveVault is done once via a secured T3 connection over the Internet. Subsequent changes to the primary files are updated to

the backup within 20 minutes.

It also has access to the state government's IT operations center, located 10 miles away, which acts as a hot-standby facility. The state agency can restore systems in an emergency by retrieving saved copies from LiveVault over a secure Internet connection.

Zemer's team has used the service a few times to recover databases and the post office for Novell GroupWise. Accidental deletions account for the most common recovery scenario, but on occasion DEQ has suffered from corrupt files or problems upgrading software.

Test your plans and make sure your personnel know how to complete their responsibilities in an emergency, advises Scot Nattrass, director of operations at Oncology Therapeutic Network (OTN). "Technical departments spend time making sure data is backed up or that people know how to access it, but training and testing can get over-

looked," he says.

A subsidiary of Bristol-Myers Squibb, OTN is a drug distributor in South San Francisco, Calif., and employs about 200 people.

The firm uses Network Appliance's SnapMirror replication tool to make real-time backups of its customer relationship and enterprise resource planning applications in Bristol-Myers Squibb's New Jersey data center. What's more, OTN established a back-up call center about 100 miles away in the more seismically stable area of Sacramento.

Workers have access to management's disaster-planning manual, and employees have been trained about what to do if an emergency arises.

Customer service and order-processing staff have been given an emergency phone number to call for updates, and wallet-sized reference cards provide phone numbers and other contact information.

DEQ's CIO keeps a list of names and contact details for every IT staff member, and teams of people have been identified to perform certain functions in case of an emergency. Copies of the disaster-recovery plan are kept on- and off-site.

When you assemble your plan, Metzler recommends considering as many contingencies as possible. For instance, would you know how to get staff to your building or to stand by in case of a disaster? How would you contact staff if there was a natural disaster and all the wired and wireless telephone networks were down? "There is no magic elixir. You should have a back-up plan [for the real plan] — what types of situations would there be for the [main] plan not to work?" Metzler asks.

Some questions may be difficult to answer, but as Nattrass says, "The plan will never be complete. It is a living document." Test and update the plan as business progresses. ■



Scott Nattrass of Oncology Therapeutic Network established a back-up call center 100 miles away from company headquarters.

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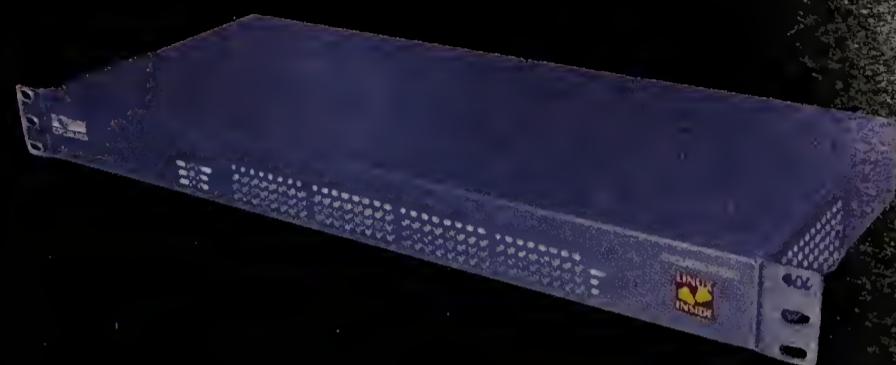
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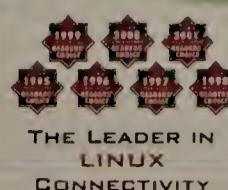
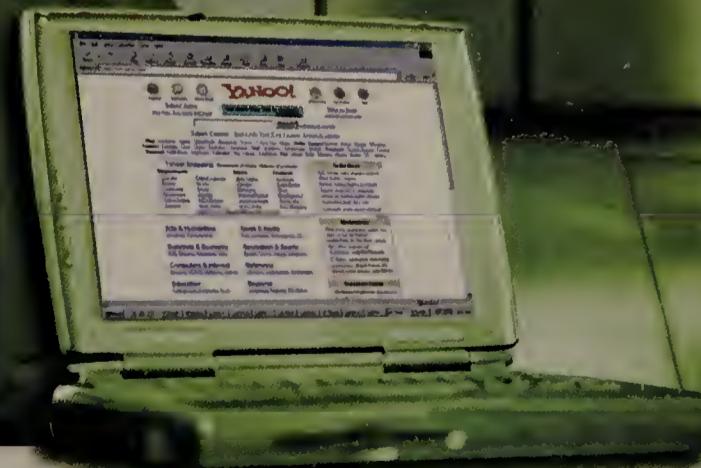
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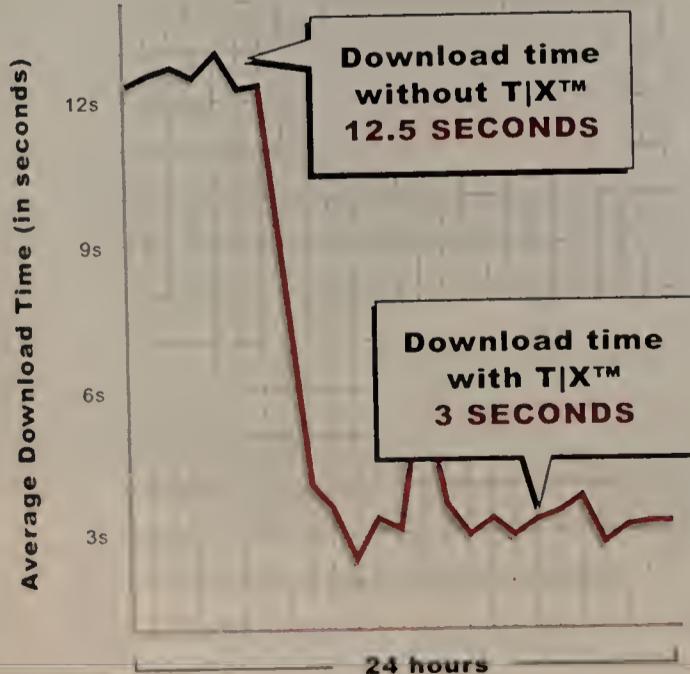
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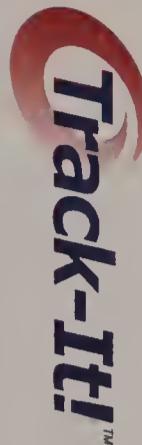
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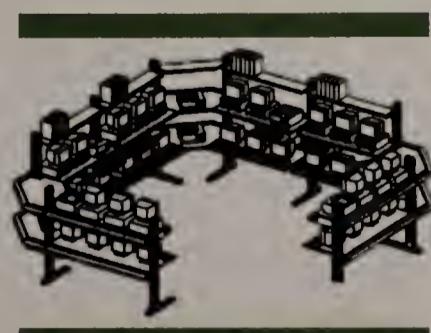
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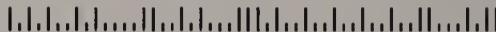
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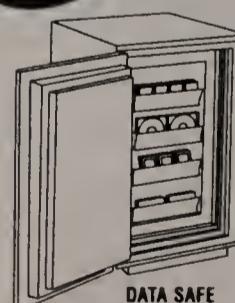


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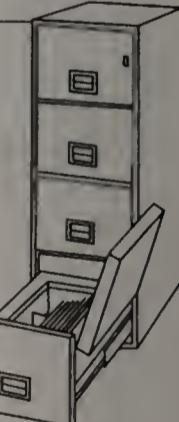
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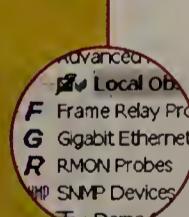
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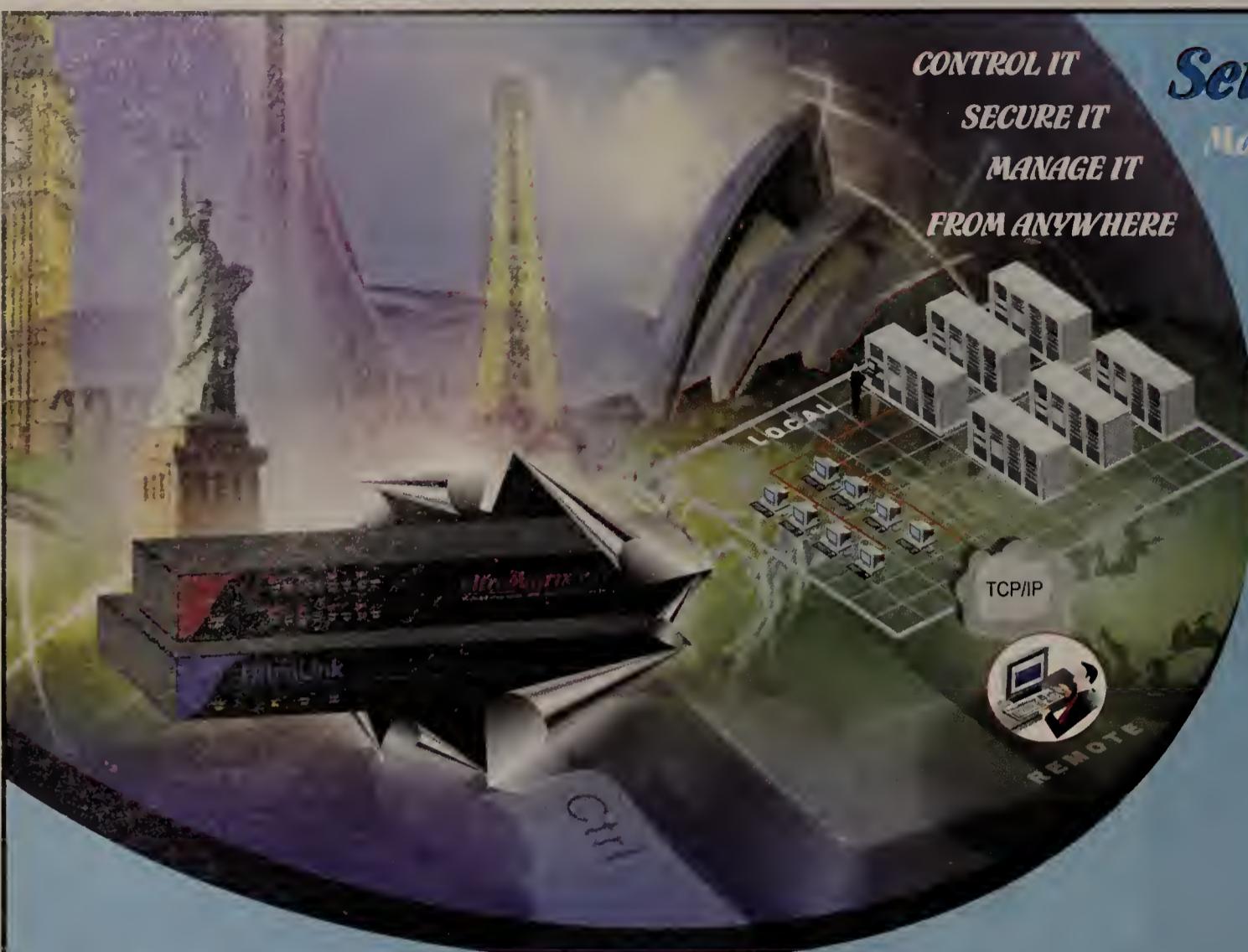
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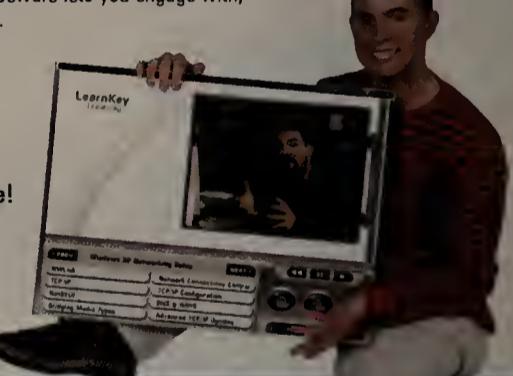
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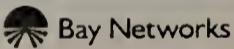
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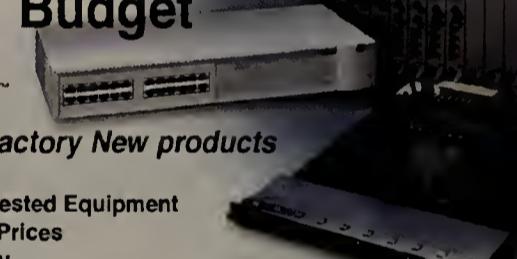
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"Changing The Culture of IT: From Access to Ownership"
This Plenary addresses the conference theme and serves as a stepping off point for our Entrepreneur Showcase. Guest speakers for this session are two presidential appointees: Dylan Glenn, economic advisor to President Bush and Ronald N. Langston, Director of the Minority Business Development Agency (MBDA). This session will be moderated by a powerful IT-based entrepreneur from the Chicago area...Mr. Robert Blackwell, Founder and CEO of Blackwell Consulting Services, Inc.

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Amdocs, a leading developer of software solutions for the telecommunications industry is seeking team players with strong technical & personal skills for the following positions at our Chesterfield, MO location.

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--to manage telecommunications billing system at client site. Provide support in all application areas. Req'd.: Bach. Deg. in Comp. Sci., Math, Physics, Eng'g or related discipline. Must have exp. w/ Oracle and VAX/VMS. Must have exp. w/ telecommunications projects, and information systems projects management. Must have 2 yrs. exp. as Site Manager or Project Manager

★ Software Engineers

--to design, develop & implement software for communications networking products. Req'd.: Master's Degree in Comp. Sci. or Eng'g and exp. w/Java, Oracle and SQL attained through educ. or employment. Must have 1 yr. exp. as Software Consultant/Analyst or Engineer.

--to conduct testing of telecommunications systems software and provide technical support and problem resolution. Req'd.: Master's Degree in Comp. Sci., Math, Eng'g or a related discipline and 2 yrs exp. as Software Engineer or other software development occupation. Must have exp. w/ C/C++, SQL, Oracle and telecomm projects.

--to generate supporting design documents, performance criteria and interoperability requirements for telecommunications systems. Req'd.: Master's Degree in Comp. Sci or Eng'g, and 2 yrs. exp. as Programmer/Analyst or Consultant. Must have exp. w/ SOL, HTML, Java, Visual Basic & telecomm Projects.

★ Systems Analysts

--to analyze, design, code, test and integrate telecommunications billing system software. Req'd.: Bach. Deg. in Comp. Sci., Math, Physics, Eng'g., or a related discipline and 2 yrs. exp. as Systems Analyst or Programmer/Analyst. Must have exp. w/ COBOL, VSAM, DB2 and JCL.

--to conduct expensive testing on telecommunication software products according to customer requirements. Req'd.: Bach. Deg. in Comp. Sci., Math, Eng'g. or a related discipline and 2 yrs exp. as Systems Analyst or other software development occupation. Must have exp. w/ C/C++, SOL, Oracle and telecomm projects.

--to analyze new and existing telecomm software for mktg. mgmt. & inventory control. Req'd.: Bach. Deg. in Comp. Sci., Math, Physics, Eng'g., or a related discipline and 2 yrs. exp. as Systems Analyst or in other software development occupation. Must have exp. w/Visual Basic & SOL in a Windows NT environment and exp. w/telecomm projects.

--to design, develop, code & test software solutions for telecomm switch control & customer care. Req'd.: Bach. Deg. in Comp. Sci., Math, Physics, Eng'g or a related discipline & 6 months exp. as Systems Analyst or Programmer. Must have exp. w/ SOL & Powerbuilder acquired through employment or education and exp. w/ telecomm projects.

--to analyze new & existing telecomm software for billing systems. Req'd.: Bach. Deg. in Comp. Sci., Math, Eng'g. or other related discipline. Must have knowledge of C, C++ and UNIX attained through employment or education.

Due to the unpredictable growth of the telecommunications industry candidates for all positions must be willing to temporarily relocate to client sites throughout the U.S.

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Trainer, Professional Services

Pitney Bowes has an immediate opening in its Lisle, Illinois office for a Trainer, Professional Services.

Design, create, update and deliver courses for new and existing products, including a print stream manipulation product that enables the use of modern insertion equipment, the enhancement of printed output and the interface to print handling tools, as well as a suite of mailing efficiency and data quality solutions designed to maximize postal discounts and tools for dealing with customer tracking and returned mail 50-70% travel required.

Must possess at least a bachelor's or its equivalent in Computer Science or a related field and relevant experience as a Trainer in IT field, including hands on experience in the design, creation and delivery of technical and non-technical training content; and in the delivery of technical training in a variety of hardware environments, including mainframes and personal computers.

Resume and/or cover letter must reflect each requirement above and specify reference code TPS or it will be rejected.

Forward resume to Robbin Drew Elliott, Pitney Bowes Inc., One Elmcroft Road, Stamford, CT 06926-0700.

Seeking qualified applicants for the following positions in Memphis, TN:

Sr. Business Application Analyst: Coordinate/serve as liaison between technical developers and users/customers. Requirements: bachelor's degree* in computer science, math, statistics, business or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with PeopleSoft applications, SOR and Informix also required.

Senior Programmer Analysts (2): Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: bachelor's degree* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with Oracle and UNIX scripting also required. A master's degree in the stated field can offset 2 years of required experience for any of the positions. Please indicate which position you are applying for on your resume. Submit resumes to Christin Decker, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Senior Programmer Analyst

Pitney Bowes Inc. has an immediate opening in its Stamford, Connecticut office for a Senior Programmer Analyst.

Provide advanced software support and development for existing and new Worldwide Postage by Phone installations including system support, troubleshooting and system installations.

Must possess at least a bachelor's or its equivalent in Computer Science or Computer Engineering and relevant experience with Visual Basic 3.0 - 4.0, SOL Database Application programming using ODBC/RDO and Client/Server architecture and Microsoft SOL Server and Windows NT operating system.

Resume and/or cover letter must reflect each requirement above and specify reference code SPA or it will be rejected.

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Senior Software Engineer

Pitney Bowes Inc. has an immediate opening in its Danbury, Connecticut office for a Senior Software Engineer.

Expand the features and capabilities of the Company's document messaging product's mission critical real-time control system utilizing OOAD and C++ software under WinNT. Code, design, debug and deploy components of this large C++ application.

Must possess at least a bachelor's or its equivalent in Computer Science, Engineering or a related field and relevant experience as a Software Developer. Must possess experience using OOAD and C++ under WinNT on large scale, multi-developer software projects.

Resume and/or cover letter must reflect each requirement above and specify reference code SSEKS or it will be rejected.

Forward resume to Robbin Drew Elliott, Pitney Bowes Inc., One Elmcroft Road, Stamford, CT 06926-0700

Systems Analyst: Dev Systems for tech. app.; Program in FoxPro, VB, Clipper, MS Access, MS SQL Server, Informix DB, System integration between PC & AS/400, Using Cobol, RPG/400, C/A, DB/2 knowledge of Windows 9X, NT, XP, 2000, Novell Netware, 5250 emul, experience in Drivers scheduling, manufacturing systems. Req. planning, evaluation, and develop user requests for new, modified existing programs using programming techniques & computer expertise, increasing operating efficiency or adapting to new req., oversee inst. of HW & SW, monitor programs performance SP, 5 yrs exp. in job offered. Fax 305-819-1510.

Must possess at least a bachelor's or its equivalent in Computer Science or Computer Engineering and relevant experience with Visual Basic 3.0 - 4.0, SOL Database Application programming using ODBC/RDO and Client/Server architecture and Microsoft SOL Server and Windows NT operating system.

Resume and/or cover letter must reflect each requirement above and specify reference code SPA or it will be rejected.

Forward resume to Robbin Drew Elliott, Pitney Bowes Inc., One Elmcroft Road Stamford, CT 06926-0700.

Senior/Staff Engineer

Pitney Bowes Inc. has an immediate opening in its Shelton, Connecticut office for a Senior/Staff Engineer.

Design and code Shipping Applications on AS/400 using PDM, SDJ and RPG.

Must possess at least a bachelor's or its equivalent in Computer Science, Engineering or a related field and relevant experience as a Software Engineer including programming in RPG and AS/400, CCL, PDM, SDJ and RPGIV.

Resume and/or cover letter must reflect each requirement above and specify reference code SSEKS or it will be rejected.

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Sr. Software Engineer

Design and development of reports, functional specifications, and high level design utilizing BRIO. Must have BS in CS or EE or related & 3 yrs. exp. or 3yrs. exp. in a related position w/ability to use: Brio Administrator, Brio Query Designer, Brio SOR Report Builder, Brio One Integrator, DB2, J2EE, SOL Server, & Cold Fusion. 40.0 hrs./wk 8:00 AM - 5:00 PM \$82,660/Yr. Applicants send cover letter and resume to:

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A high-tech company is seeking the following Software Engineers who will collaborate in the research, design & development of next-generation storage network systems. Req'd:

Software Engineer #1: Master's in CompSci. Min 1yr exp as Software Engineer/Researcher. Must have research and/or project exp w/Active Networks & network programming. REF#20065-1
Software Engineer #2: Master's in CompSci. Min 1yr exp as Software Engineer/Researcher. Must have research and/or project exp w/design & development of IP protocol stacks. REF#20065-2
Software Engineer #3: Master's in CompSci. Min 1yr exp as Software Engineer/Researcher. Must have research and/or project exp w/network security & access control in IS. REF#20065-3

Send res. to: Anne Budowsky, Nextorage, Inc., 520 8th Ave., 21st Fl., NY, NY 10018. PLS INDICATE REF#.

Software Engineer req'd by an Enterprise Data/Application Integration co. in Edison, NJ. Must have Bachelor's Degree in Computer Science or Engineering or Equivalent & two yrs of exp. in designing, developing, testing & integrating enterprise application packages using C++, Visual Basic, VB Script, Visual Interdev, HTML, DHTML, XML, MSHTML, MTS, IIS, ActiveX, COM, DCOM, ODBC in n-tier environment under Windows/NT environment; performing data migration & schema design; creating relational databases such as Oracle, DB2 & SOL Server. Please respond repond to HR Dept., Mindware Inc., 12 Charles Court, Edison, NJ 08820.

Consulting comp. in Edison, NJ req. Prog. Analyst w/BS deg. & 2 yrs. exp. or Software Engg. w/MS & 1 yr. exp. or its equivalent in both prof. Equiv. is based on educ. & exp. evaluation.

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Programmer Analyst, Multiple openings, wanted by IT Firm in Delaware.

Programmer Analyst, Must have BS in Engineering plus 2 yrs of telecom software development in C/C++/Java using VoIP (H.323/SIP/MGCP/MEGACO/RTSP), GSM/GPRS/CDPD, SS7/ISUP/MTP/SCCP/TCAP/INAP) and/or LAN/WAN (TCP/IP, UDP/SNMP/X.25/ATM) protocols.

Programmer Analyst, Must have Bach. in Sci. or Engineering or MIS plus 2 years experience in dsgn & devlp net enabled applics using SOL, PL/SOL, C, C++, ASP, Java, HTML, DHTML for c/s Windows 95/98/NT, Unix, MS DOS; etc.

Respond to HR Dept., Neotech Solutions Inc, 1170 Broadway, Suite 314, New York, NY 10001

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Thomson Financial Inc. seeks a Database Administrator (Boston, MA) to provide comprehensive DB admin. services to implement Oracle & Sybase DBs for Sun Solaris/HP-UX & NT OS; support development for JDBS & SQLJ; & use WebDB for production support & devel. Min. requirements: Master's degree or equiv. in Computer Sci., any Engineering area or related field, + 5 years of exper. as DB Administrator working in Oracle & Sun Solaris envir.; exper. must incl. 3 yrs of JDBS, SQLJ & WebDB (aka Oracle Portal) in the Sybase/HP-UX/NT envir. Pls respond to: Nicole White, HR, Thomson Financial, 22 Thomson Place, Boston, MA 02210.

Senior Systems Engineer sought by Vienna, VA based Communications Company. Must possess Bachelor's degree or equivalent in Computer Engineering or directly related field and 2 years exp. in software/systems development and design. Respond to: Human Resources Department: Cable & Wireless USA, Inc., 8219 Leesburg Pike, Vienna, VA 22182.

SOFTWARE ENGINEER: Design, develop, code, test, and implement computer software using various computer languages including Visual Basic, 6.0, VB Script, ASP, HTML, Visual InterDev, RDO, ADQ, Active-X, MS-Access, and/or Developer 2000. Requires Bachelor's Degree in Computer Science, Engineering, Business or related field plus 1 year of experience in the job offered or 1 year experience in software development, 40 hrs/wk, 8:30 a.m. to 5:30 p.m.; \$65,000/yr. Send two (2) copies of resume/respond to: Case #200110280, Labor Exchange Office 19 Stainford St. First Floor, Boston, MA 02114.

Sr. Programmer/Analyst. Analyze, design, implement, test, integrate & configure e-business applications; dev. marketing & customer service interfacing using content mgmnt software tools & dev. web-based solutions. Reqd: B.S.C.S. & 1 yr. rel. exp. & demonstrable ability to work w/Java technology, J2EE architecture, Oracle, Apache, Rational Rose, BEA Weblogic Portal Server & ClearCase. M-F, 40 hrs/wk + o/t. Freq. reloc. within U.S. may be necessary. Send resume to J. Brigham, HR Ref. #051302, TEK Systems, Inc., 6992 Columbia Gateway Drive, Columbia, MD 21046.

Computer Programmer sought by a Houston plastics products manufacturer. Related computer degree and experience required. Respond by resume to HR Dept., Pro-Plastics, Inc. 9530, Baythorne Drive, Houston, TX 77041.

Engineers/Consultants/Programmer/Analysts needed. Softmatrix, Inc., located in Roseville, CA has several senior and mid level positions avail. for qual. candidates possessing MS/BS or equiv. and/or relv. work exp. Exp. must include working with JAVA, XML or VB. Exp. with EAI and/or ETL middleware tools is a plus. Work with 2 or more of the following skills: Unix, Perl, Oracle, ASP, C++ and SQL Server. Must be willing to travel and relocate as required. Mail resumes to: ATTN: Qnesi Gnaniah to 1316 Blue Oaks Blvd., #100, Roseville, CA 95678.

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Senior Programmer Analyst - Prime Software, Inc. a developer of client-server and Internet-based business application software currently seeks applicants for the following position in its Lisle, Illinois office: Senior Programmer Analyst. Applicants for this position must have a bachelor's degree in MIS, Engineering or related field plus 5 years of relevant experience in systems, application and program development using Powerbuilder, complex database programming in MS Sql Server, Sybase database. Web development experience in J2EE compliant Application Servers and JAVA would be required. Experience in working with full cycle projects conforming to SE1-CMM standards would be an advantage. For consideration, please forward resume to: Prime Software, Inc. Attention: Steve Good, 5007 Lincoln Ave., Suite 205, Lisle, IL 60532. EOE

SOFTWARE ENGINEERS (8 positions): require Bachelor's in Engineering/Computer Science/Mathematics/Science or closely related field with experience providing skills in described duties, at \$60,000 per year; Senior Software Engineers (8 positions) with Master's and two years experience, at \$65,000 per year. Provide on-site consulting in design, analysis and development of operating systems-level software for legacy systems in IBM mainframe environment; development and administration in Oracle, DB2, SQL Server and Sybase; e-commerce and web applications development in Microsoft, Java and related technologies; network management systems development with Netscape Server and related tools; SAP R/3 applications on Windows with DOS and ABAP/4 and related modules. 40% travel to client sites in the United States. Mail resume to: YASH Technologies, Inc., Human Resources, 605 17th Avenue, Suite 1, East Moline, IL 61244.

Senior Business Analysts: Oracle Apps. 10.7/11.0/11/PeopleSoft 7.0/7.5/8.0; Apps DBAs: Oracle RDBMS 7.x/8i/9i, Oracle Apps. 10.7/11.0/11i upgrade & migration, ERWIN, SQL Server RDBMS, SQL Server 2000/7.0/6.5/6.0 on Solaris/HP Unix/Windows NT/2000 platforms. Oracle Apps. Programmer Analysts: Oracle Apps 10.7/11.0/11i (modules-GL, AP, AR, FA, PQ, INV, QE/QM, HRMS, Service). Customize Oracle Apps using Oracle Developer 6i/JDeveloper for service modules. Senior Programmer/Analyst: Oracle PL/SQL, Oracle 8i, Oracle 9i, 9iAS, Developer 2000/6i; Siebel CRM/Oracle CRM Configurator and Technical Programmer/Analysts: Siebel suite incl. Communications 2000, Call Center, Energy '00, Tools 6.3/7.0/Oracle CRM 31/11i. Senior DBAs: Sybase 12.5/12.0/11.1/10.x/Oracle database 7.x/8i/9i. Senior Network Engineer/Certified Microsoft Trainers: MCSE, MCT & Cisco certifications. Prevailing wage/benefits. Consulting positions requiring travel. To apply, send resume identifying position(s) interested to HR, BPO Systems, 3333 Vincent Road, Suite 216, Pleasant Hill, CA 94523. EQE.

MI Consulting Co. seeks SAS Programmer to conduct statistical analysis of data and produce tables that demonstrate the safety and efficacy of drugs tested in human trials; develop and validate computer systems as per standard operating procedures and work instructions; develop and validate systems that demonstrate secondary efficacy parameters including patient reported outcomes; extract and deliver data to biostatisticians for further analysis; develop and maintain SAS applications for summary level analysis, listing reports, user interface systems and regulatory queries. Min req. Bachelor's Degree in Economics/Comp. Sci. or equiv. and 1 yr. in job or job-related exp. including analyzing health data, Systems Development Life Cycle, and use of Oracle, Unix and Excel. Resumes to CCE Consulting, 369 Franklin Wright Blvd., Lake Orion, MI 48362.

Senior Software Engineer. Web development with server side scripting; desktop application development; database design; data transfer services, requirements analysis, and the definition of solution and architectures with two and three tier designs; project management; act as technical lead; and communicate with management in global corporate enterprises. Must have B.S. in Comp. Sci., Eng. or related, 3 yrs. exp., and knowledge of ASP, DHTML, VB Script, Javascript, VB, ADQ, DAQ, Win32 API and COM technologies; MS Access, MS SQL Server 6.5, 7.0, and 2000; Erwin, DTS, CPM, MS Project, and MS Office. Send cover letter and resume to HRSOFT, LLC, Attn: Paul Brook, 505 North 4th St., Fairfield, Iowa 52556

IT20 seeks qualified software engineers with experience in one or more of the following technologies:
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Integration

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industry standards for integration and remove dependencies on proprietary APIs.

Vendors including J.D. Edwards, Oracle, PeopleSoft, SAP and Siebel Systems are adding support to their suites for emerging standard technology, including Simple Object Access Protocol, a transport mechanism for exchanging XML-based data; Web Services Description Language, which describes services and how they should be used; and Java 2 Platform Enterprise Edition Connector Architecture (JCA), which provides a mechanism for storing and retrieving data from different J2EE systems.

In addition, some ERP and CRM vendors are building messaging brokers into their suites to handle the transfer of data among disparate applications — a task that traditionally is the domain of dedicated enterprise application integration vendors, such as webMethods, Tibco Software and Vitria.

A tradition of difficulty

Traditionally, ERP and CRM vendors provide an API to their software and leave the integration work to customers, who might write custom code, hire a systems integrator or invest in integration middleware to make the necessary application connections. Working with APIs often requires manual coding, and they do not provide for a scalable integration method.

In addition, application integration carries a hefty price tag. With

CRM, implementation costs two to five times as much as the software, and application integration accounts for 30% to 50% of implementation costs, says Erin Kinikin, vice president at Giga Information Group. "These are multi-million dollar projects every time you add a new software solution to the mix," she says.

For this reason, some users do all they can to keep from adding new vendors, and new application integration challenges, to their software infrastructure.

Waters Corp. CIO Paul Newton is reluctant to add software from another vendor to his Milford, Mass., company's SAP-centric infrastructure. Waters, which makes laboratory instrumentation and software, runs SAP in its back office and for product life-cycle management and CRM. "We only go outside the SAP box when we have to, if there's a compelling business reason," he says.

The primary reason for Newton's loyalty is because SAP assumes much of the burden of integrating its modules, he says. With a best-of-breed collection of software from multiple vendors, the effort and cost required to achieve tight integration is prohibitive, he says.

The idea of tight integration is key to Newton's point. "There's loose integration with a manual interface, and there's tight integration where applications share the same data. Then there's lots of gray in between," he says.

A manual interface through a proprietary API provides a means for one application to make requests of another application and pull in data. But when an application pulls in data

Integration expectations

Companies have ambitious plans to link their enterprise resource planning software with myriad other applications, according to a recent Gartner survey*.

Applications to be tied to an ERP system



* 64 respondents, multiple responses allowed

through an API and duplicates that data in its own repository, there are two instances of the data that need to be kept in sync to maintain its quality. Conversely, when applications share the same resources, data doesn't have to be duplicated in application-specific repositories, and information and processes can be tied together.

The integration issue

To help reduce the custom coding required to link software from multiple vendors, ERP and CRM vendors are paying more attention to standards-based application integration.

"Users are desperate because the benefits of their applications depend on those applications being connected to the right parts of their business," Kinikin says. "Users will be ecstatic to think that somebody who understands their application problems is going to step in and get involved."

For its part, Siebel is tackling integration through a combination of its own development efforts and partnerships. The company last month unveiled plans for its Universal Application Network product, which is built around a set of 200 industry-specific "business processes" that Siebel is creating.

Instead of being tied to a single application and based on proprietary technology, these prepackaged software sequences engage multiple applications to access data needed to complete common business functions. For example, a business process might cover creating a new customer

record or advancing a sales transaction from the quote stage to order placement.

Rather than develop its own integration broker, Siebel recruited middleware vendors IBM, SeeBeyond, Tibco, Vitria and webMethods to supply the underlying integration platform for Universal Application Network. The system is based on standards such as XML and Web Services Flow Language.

Siebel's integration strategy is a step in the right direction, says Ned Liddell, vice president of CRM at TMP Worldwide, the parent company of online careers firm Monster.com. Today, Monster links its Siebel applications with Oracle Financials, the Monster.com Web site and an internal data warehouse using a variety of tools, including Microsoft SQL Server's Data Transformation Services tools for importing and exporting data.

Liddell knows his application integration requirements will only grow bigger. "Siebel's XML option will make it easier for us to integrate other systems and will give us more control," he says. "We're doing [integration] already, but have had to do more work ourselves."

The core ERP vendors, too, are addressing integration. But they have taken a different tack from Siebel's, opting to build their own integration brokers.

SAP is readying an integration broker, due out this fall, that will be built into a J2EE-based application server the company is developing. The J2EE server will be a key part of SAP's new Exchange

Infrastructure architecture, which was announced last year.

Oracle, too, is building integration tools into its application server. Built into its Oracle9iAS is InterConnect, a messaging-based integration framework. Prebuilt application adapters, designed to work with InterConnect, are available for third-party software from companies such as SAP, Siebel and PeopleSoft. In addition, Oracle is working on application adapters based on the emerging JCA standard. The advantage of JCA-compliant adapters is that they will work with other vendors' messaging infrastructures.

PeopleSoft in its latest upgrade — PeopleSoft 8.4, released in March — included homegrown messaging middleware called PeopleSoft Integration Broker. The middleware acts as a hub for connecting PeopleSoft applications to legacy systems and trading partners' systems, reconciling different applications with different data models, the company says.

J.D. Edwards has its eXtended Process Integration (XPI) engine, which is based on webMethods technology and built into the company's OneWorld Xe suite of ERP applications. The XPI message broker handles moving transactions and customer information among J.D. Edwards and third-party vendors' applications, the company says.

This strategy of offering it all — ERP and CRM applications bundled with a message broker for third-party application integration — could mean more to mid-size companies, which would be thrilled to have a single vendor source, Kinikin says.

FWMurphy, a privately held electronics parts distributor, agrees. The Tulsa, Okla., company uses J.D. Edwards ERP software and is rolling out J.D. Edwards' CRM products. The chore of developing and maintaining integration points was a key factor in the company's decision to go with J.D. Edwards for CRM, says Mike Myers, vice president of operations at FWMurphy.

"I can build an integration point between any applications. But the first time I do an upgrade, I have to worry about preserving those hooks and [keeping track of] what's changed. That can be a real mess," he says.

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BackSpin

Mark Gibbs



If music be the food of law

I just drove from my home (north of Los Angeles) to Las Vegas, a pleasant five-and-a-half-hour jaunt. It was great — I loaded up the CD cartridge, packed it into the car, cranked up the volume and rocked out, baby.

My selections included a CD I purchased ("Tales of the Inexpressible" by Shpongle — one of the best CDs of 2001) and several I created. The content for the latter I downloaded — no, not from Napster, Grokster or any of that ilk.

Last year I subscribed to emusic.com, and it frankly changed my life. I am a music addict and I used to spend a fortune on CDs. The problem was that much of the money I spent was wasted. All too frequently I'd hear a track or two from some album, go and buy it and then find that the rest of the album was far less engaging.

Then I found emusic.com! Emusic has several subscription plans and I chose the \$9.95-per-month version that lets me download as many MP3s as I please. And what a selection there is! My collection of jazz and big band has exploded, I'm drowning in classics and my drum and bass, jungle, ambient and hip hop holdings are staggering.

So, in preparation for my journey I burned a half-dozen CDs and, as I said, off I roared.

Now, if the Broadcast Protection Discussion Group (BPDG) has its way, downloading music could become far more complex or even forbidden. The BPDG is a subgroup of the Copy Protection Technical Working Group, a subgroup of the Motion Picture Association of America (MPAA). Whew.

The objective of the BPDG is to define what features must and must not be included in digital playback devices (TVs, audio players and so on) as part of a "standard." To this end they have invited all of the major technology vendors to join in and most worryingly, this insane idea is to be enforced by law!

Yep, you read that right. Sen. Ernest Hollings (D-S.C.) has tried since last year to sneak a bill into existence called the Security Systems Standards and Certification Act (SSSCA), which would require that any "digital media technology" be controlled to the extent that approval would be required to introduce digital media technologies in professional and consumer equipment.

So far, Intel and Phillips have spoken out against the SSSCA and its bastard revision, Hollings' Consumer Broadband and Digital Television Promotion Act, but the battle has probably not even begun.

The problem is that Hollywood as represented by the MPAA just doesn't get it: It doesn't matter what laws are passed, digital content cannot be controlled

by its creator once it is let loose in the world. Sure, we can create laws that mandate technologies to be used in equipment to maintain copyright but we all know how long it will take before someone figures out a hack.

But in all this wild posturing and positioning, these ideas will have an effect far greater than stopping a few CDs or DVDs from being copied. They will create a violent assault on free speech, including academic work (remember Professor Felten, who successfully hacked the bSecure Digital Music Initiative's "Public Challenge" and was legally prevented from publishing his results), hobble technological progress, and make consumer and professional products more complex, more expensive and less useful.

The Electronic Frontier Foundation (www.eff.org) has lots of background and news on these issues and we should all get behind the EFF and make our voices heard before this stupidity gets more momentum. The sheer irrationality of these ideas is frightening and should they get any traction in the real world it will set an appalling precedent for all sorts of controls over the IT industry.

And worst of all, it could make my drive to Las Vegas much less enjoyable.

Secure or insecure music recommendations to backspin@gibbs.com.

'NetBuzz

News, insights, opinions and oddities

By Paul McNamara

IM attracting unwanted interest

Just when more corporate network executives are opening their eyes to the potential business benefits of instant messaging, so too are the scam artists and pornography pushers who already fill our e-mail in-boxes with spam.

That's the bad news.

The good news is that spammers are likely to have a harder time littering their garbage across the instant-messaging landscape than they have had with e-mail. At least that's the assessment of David Ferris, president of Ferris Research, who has recently published a number of interesting newsletters on the topic.

"We've talked about it with a lot of people, and IM spam is definitely increasing," Ferris says.

Users are seeing only the tip of the camel's snout at this point, Ferris adds, but he fears a more noxious intrusion is near. And the reasons he cites make sense:

- Instant-message spammers know they are reaching a live, attentive human being, not merely an in-box.
- Tools for harvesting instant-message addresses and automatically generating lists of instant messages are certain to become plentiful and easily obtained.
- A lot of the world is chock full of lazy good-for-nothings who have no qualms about using the time, patience and resources of strangers to turn a grubby buck or two. (That one's mine, not Ferris').

The bad news for hope, Ferris notes.

In the short term, ambitious instant-message spammers largely will be thwarted by proprietary instant message systems enjoy a large measure of protection against spam because of their very closed nature, Ferris says. Over the long haul, however, spam only will be a truly important business tool when the systems open up. People can talk to one another as with e-mail and the tele-

phone. That interoperability also will invite more spam, but Ferris says we should take heart in knowing that the Internet Engineering Task Force is hard at work erecting defenses against this expected onslaught. In short, it seems that the lessons of e-mail spam have not been lost on the keepers of the Internet.

Such had better be the case, because nothing less than the future of business-class instant messaging is at stake.

Telematics, schmelematics

An amazingly high percentage of U.S. consumers stand ready, willing and able to pay for wireless services in their cars — telematics, in the vernacular — according to a recent survey by Jupiter Media Metrix. "Despite a high \$400 upfront cost for equipment and installation, 44% of consumers would pay for a basic 'telematics' service focused on safety and security, and nearly 50% would be willing to purchase a premium service package that includes navigation assistance, automated business locators and office communications applications such as e-mail and voice mail," Jupiter says.

Buzz says it's much more likely that 44% of consumers would pay to have their cars dipped in chocolate sauce and sprinkled with jimmies.

People will tell pollsters most anything if they think it makes them sound cool. Let's see who really pays for these services.

Giggles from Google

Ever wonder what makes Google tick? According to the company's Web site, it turns out that "the heart of Google's search technology is PigeonRank, a system for ranking Web pages developed by Google founders Larry Page and Sergey Brin at Stanford University. Building upon the breakthrough work of B.F. Skinner, Page and Brin reasoned that low-cost pigeon clusters could be used to compute the relative value of Web pages faster than human editors or machine-based algorithms."

Really. It's right there at www.nwfusion.com. DocFinder: 9351.

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